



# Science and the Buddha Dhamma

*Dīpobhasadhamma Anācariyako – Panna Foundation for Dhamma Studies – October 2022*

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## Preface

Siddhartha Gotama, the man who became the awakened one, known as a Buddha, lived some 2,600 years ago. To many his existence seems like a fairy tale, but his influence on humankind has had a profound and lasting effect. Advancements of our modern world may seem to overshadow his teachings; considered too ancient to be of any significance for modern humankind. Buddha Dhamma, which is what a Buddha’s teachings are called, have been battered in modern times by commercial interests who market his wisdom for profit. Although science has advanced and altered our understanding of the Universe, the Buddha’s teachings have never changed nor have they ever been altered to fit with current historical and scientific knowledge. But in fact, as is shown in the following pages, the Buddha’s teachings, in many respects, confirm current scientific knowledge. However, regardless of the advancements gained through scientific exploration, science has yet to find an explanation for consciousness, death or rebirth. Yet, those many centuries ago, the Buddha provided clear explanations for all of these things. This paper examines, as much as it can, the Buddha’s life in a historical context; then approaches our current scientific knowledge for the purpose of elucidating the parallels within the Buddha Dhamma. Also examined is the profound pall of ignorance that humankind has wrought upon itself throughout history due to influences of religious dogma. Though science has given us tremendous insight and understanding of the material world, humankind remains in the dark with regard to an understanding of the human condition.

This paper highlights various aspects of the human trek through history, which to borrow from historian Barbara Tuchman, is truly a March of Folly<sup>1</sup>. The goal of this paper is to paint a picture of how modern science, and our current world view, was already understood by the Buddha. Additionally, specific focus is directed toward an understanding of how his teachings are more relevant today than at any previous time in history.

Siddhartha Gotama was born in Lumbini, known then as a part of the larger city-state of Magadha<sup>2</sup> in present-day India. The Buddha's birthplace is now a



*Rhys Davids-Courtesy  
Pali Text Society*

UNESCO World Heritage site<sup>3</sup>. For nearly 2,600 years following the Buddha's death at age 80, the teachings of the Buddha have remained in-tact without changes or additions. Three months after the Buddha's death, his teachings, which were already previously memorized, were codified by 500 monks. Eventually the teachings were written down and preserved.

During the late 1800s, many European scholars, such as Rhys Davids, the founder of the Pali Text Society, along with Eugene Burnouf, and others, began translating the Pali texts into the English language. Early scholars did not possess a broad understanding of the Pali language, translating the text word-for-word, creating many errors. This in turn caused further confusion with regard to the exact meaning of the Buddha's teachings, leaving an open door for incorrect doctrinal concepts.



*Archaeological Diagram of Lumbini, Birthplace of the Buddha*

Throughout the Ages, the social, cultural, political, and religious landscapes have evolved to such a degree that the World of even our grandparents has become unrecognizable, let alone the World of the Buddha. Writing a paper examining humankind's progress through history, correlating the nature of this progress with an evaluation of the Buddha's teachings seems like an insane idea. What could be the purpose? There is an inherent difficulty writing about the teachings of the Buddha without imposing the writer's own opinions, ideas or concepts. However, the Buddha's teachings require less interpretation than one may believe, but do require direct experience to explain. Is the examination of the Buddha Dhamma; an understanding of the mechanics of the Pali language the focus? Perhaps for the linguist. However, with direct experience of the Buddha Dhamma one discovers that the mechanics become secondary. The real focus is in the knowing, the understanding, and the comprehension of not only what the Buddha taught, but why he taught what he did.

With an open mind, the modern Age reader will discover the timelessness of the Buddha's teachings, particularly with a correlation between what he taught, and how his teachings fit into, not only the march of progress, but the tidal wash of the evolution of ideas, beliefs and concepts of the World. In many respects, science has supplanted various religious dogma with hard evidence contradicting long-standing mythical doctrines and beliefs.

<sup>1</sup> The March of Folly: Barbara W. Tuchman: [https://en.wikipedia.org/wiki/The\\_March\\_of\\_Folly](https://en.wikipedia.org/wiki/The_March_of_Folly)

<sup>2</sup> Magadha India: <https://en.wikipedia.org/wiki/Magadha>

<sup>3</sup> Lumbini, Birthplace of the Buddha: <https://www.cambridge.org/core/services/aop-cambridge-core/content/view/90338647E132E7B20420CCC9C847E237/S0003598X00049899a.pdf/the-earliest-buddhist-shrine-excavating-the-birthplace-of-the-buddha-lumbini-nepal.pdf>

It is true that at times the World's religions have found it necessary to re-invent themselves and re-tool their dogma in order to account for scientific findings, the Buddha Dhamma remains ever steadfast and cogent with even the most sophisticated of those discoveries. True to reason, the fact remains that the Buddha's teachings do not rely on material or phenomenal matter, but direct human experience. While certain belief systems are tethered to the material World in one way or another, no science, philosophy, culture or tradition is capable of changing the teachings of the Buddha.

Finding answers to the hard problems of the human condition, such as death, sickness, consciousness, the brain, and rebirth, science finds itself faced with a conundrum: How can our mental existence be substantiated with matter? What is the link? It is no less of a conundrum to science how it is that the Buddha knew the answers. Yet, science limits itself to material observation, and discounts the Buddha's teachings as 'religion,' and all that such a label implies. In order to include the teachings of the Buddha as a starting point to build scientific inquiry, means that science must adopt a broader idea of probability based on abstractions. This describes the current difficulties with the subject of consciousness. Presently, science is willing to grasp the finding that consciousness is not produced by the brain. This willingness represents no less of an amazing turn of events than did Galileo's findings that the Earth was not the center of the Universe.

Facing the problems of correlating the significance of the Buddha Dhamma to current scientific knowledge, a writer must be prepared for a twisting-turning-examination that, by necessity, includes not only a consideration of modern philosophical and scientific thinking, opinions, hypothesis, and beliefs, but contemplates the proclivity of modern humans to overlay modern-day political, social, and moral concepts onto ancient history. While the writer's knowledge of the historical world of the Buddha is necessary, in order to show how the teachings act to filter out centuries of erroneous concepts about the world and the human condition, additional knowledge of the true meaning of the Buddha Dhamma is required. This can only be accomplished by offering clear explanations that plainly reveal the applicableness of the Buddha Dhamma to modern-day concepts and scientific knowledge.

In the examination of the Buddha Dhamma, in terms of modern scientific knowledge, in no manner is there any intent to downplay or ignore a critical fact, of which the Buddha was quite clear: His teachings could not be fully comprehended by mere intellectual or rational thinking alone. The true significance of the Buddha Dhamma could only be achieved through one's own direct experience within a correct moral and ethical context. The Four Noble Truths can be digested logically, because they make sense. But, the full significance of them compels one toward integration and identification with them, resulting in direct experience of the full measure of mental power, which clarifies one's perceptions. Through strenuous effort, and a phenomenal determination to rid himself of mental hindrances, the Buddha apprehended the truth about the nature of existence. An indication of this realization came when the Buddha declared, "It is liberated!" [*Samyutta Nikaya* 12.62]. He did not say, "I," am liberated." Exactly what "**it**" was is echoed throughout his 40 years of teaching; the truth about the nature of reality and the cause of human suffering.

Intended readership of this paper is directed toward scientists and researchers. Of course, a basic understanding of the core teachings of the Buddha is advantageous. Examined first, is the historical context of when the Buddha lived. Next, an assessment of the most significant scientific discoveries of the last one-hundred years is considered. Also included in this assessment is the succession of knowledge highlighting the unnecessary decades of wasted time provoked by the ignorance of religious influences. Many of these influences caused, in some instances, centuries of delays of beneficial understanding and knowledge of our material world. In a round-about way, we will contemplate the relation of the scientific subject matter to the Buddha Dhamma, which reveals the immense depth of understanding that the Buddha possessed. It will be up to the reader to discern the value of the correlative, and at times, opposing information between Buddha Dhamma, science, philosophy, and religion. Suffice-it-to-say, this paper attempts to distinguish the truth of the Buddha's teachings in relation to current scientific, philosophical, and religious concepts, concentrating on the truth about the nature of reality. In some respects, it is hoped this paper may instigate a possible foundation for thought experiments, the goal of which is to cure long-held inconsistencies, and misinformation that have set a shroud over the truth about the nature of reality, bridging the scientist's perceptions that the teachings of the Buddha are merely religious, mythical and mystical fodder.

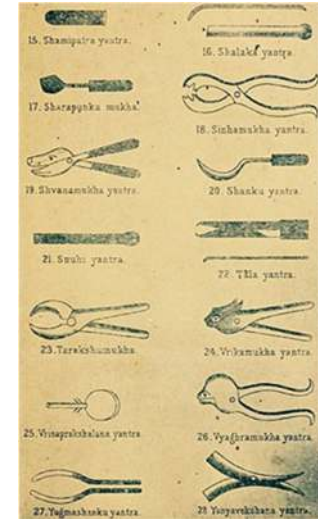
## PART 1 – Historical Context of the Buddha

Siddhartha Gotama (Buddha) was born to an elected oligarch of the Shakya tribal republic<sup>4</sup> known as a Śākya Gaṇarājya, during the Haryanka Dynasty<sup>5</sup> (544 BCE–413 BCE) in North Eastern India, which was the third ruling dynasty of the region of Magadha. Siddhartha's father, Śuddhodana<sup>6</sup>, was the clan chieftain or raja in Magadha, which was a vassal state of the larger Kingdom of Kosala<sup>7</sup> under the authority of the King. The Shakya republic functioned as an oligarchy, ruled by an elite council of the warrior and a ministerial class that chose its leader. The Shakya peoples were described by the Brahmins as "rough-spoken," "of menial origin," and criticized them because "they do not honor, respect, esteem, revere or pay homage to Brahmins."

This marks a time of critical social, political and economic change unfolding in Indian society. The earlier clan-based organization of state was disintegrating with the transition to state systems. Agricultural production advanced with the discovery and proliferation of iron tools, reducing mobility, which meant less migration. Paddy (rice) emerged as the pre-eminent crop, and the rich produce led to more rigid forms of taxation initiated by the state. Urban centers started to develop, which, under the rulers, began controlling the fortunes of the state and its people.

Moreover, significant spiritual developments unfolded in parallel, including the emergence of heterodox (heretical) sects like the Carvakas<sup>8</sup>, and Mahavira<sup>9</sup> by Vardhamana, who was founder of the Jain religion. Among these was the Buddha.

Scientific and medical knowledge abounded during the time of the Buddha. For example, about two-hundred and fifty years prior to the Buddha's birth, Sushruta, an ancient Indian physician, was the first to record surgical procedures. His work lists 125 surgical instruments, procedures for removing cataracts, and plastic surgery for reattachment of limbs, fingers, ears and noses. The highlight of Sushruta's surgical magnificence was the surgery of nasal reconstruction or rhinoplasty, repairing the disfigured nose with a flap of skin from the forehead, which he used to reconstruct noses that were amputated as a punishment for crime. The technique is practiced almost unchanged to this day, the pedicled forehead flap being named the Indian flap.



-7 00	The caste system emerges, with the Brahman priests at the top		Acropolis built in Athens
-6 50			Thales (636-546 BCE) Pythagoras (570-495 BCE)
-6 00	Life of Confucius	552-479 BCE	Upanishads composed in Sanskrit
-5 50	Lao-tze reputed author of the Tao Te Ching, founder of Taoism – dates uncertain	6th/5th cent BCE	Mahavira, ascetic prince, reforms Jainism in northern India
-5 00	Birth of Siddhartha Gautama, the Buddha, in Kapilavastu	c 480 BCE	Socrates (469-399 BCE) Plato (427-347 BCE)
-4 50	Death of the Buddha	c 405 BCE	Afghani merchant brothers receive lay vows from the Buddha, return to Bactria establish teachings in Afghanistan

Year

Significant Events

<sup>4</sup> Shakya Republic: <https://en.wikipedia.org/wiki/Shakya>

<sup>5</sup> Haryanka Dynasty: [https://en.wikipedia.org/wiki/Haryanka\\_dynasty](https://en.wikipedia.org/wiki/Haryanka_dynasty)

<sup>6</sup> Śuddhodana: <https://en.wikipedia.org/wiki/%C5%9Auddhodana>

<sup>7</sup> Kingdom of Kosala: <https://en.wikipedia.org/wiki/Kosala>

<sup>8</sup> Carvakas: <https://www.worldhistory.org/Charvaka/>

<sup>9</sup> Mahavira (Vardhamana): <https://www.worldhistory.org/Vardhamana/>



Bijaganatam was the word used in the Vedas to describe algebra, centuries before the Arabs. The concept of heliocentrism (the sun being the center of our solar system) was well known in the Vedas prior to the birth of the Buddha and long before Ptolemy. Vedanga Jyotisha, India's earliest astronomy text, contained references to astronomical information already known three hundred years before the Buddha (c. 700 BCE).

There exists the perception that the Buddha lived during some backwater time among cave-dwelling peoples who were not very sophisticated. This is immensely incorrect. The Magadhan Empire, ruled by then King Bimbisara<sup>10</sup>, was the largest and most powerful during the Buddha's life. Bimbisara's first capital was at Rajagaha (Rajagriha<sup>11</sup>). Siddhartha Gotama, having been born into a privileged political family, would have been highly educated, and aware of the scientific, religious, and philosophical knowledge of the times.

In Magadha, the Buddha lived under the political authority of King Bimbisara, whose kingdom followed a sustained policy of expansion by forging marital alliances with neighboring kingdoms. One of his wives was the sister of Kosala king Presanjit, who ruled over the territory of Kosala. Another of Bimbisara's wives was Chellana, who happened to be the daughter of a Lichchhavi chief. King Bimbisara had as many as 80,000 communities under his control, including many republican communities under leaders known as raja-kumaras. The head of each village was called a gramika, and the chief officers were called mahamatras. The penal code was stringent, and violators often had their limbs mutilated.

Money was minted, scientific knowledge flourished, new scientific discoveries were being made, as-well-as changes in philosophical, social and religious thinking. The Brahmins, adept in the ancient Vedic ways, began experiencing challenges to their beliefs and practices, and then along comes the Buddha. (*A historical context of when the Buddha lived is seen in the chart at the bottom of page 3.*)

Did the Buddha's approach to teaching include specific scientific knowledge? The answer is yes. Although the general population of the Buddha's time were not formally educated, scientific knowledge was extremely advanced for the Age. Many Vedic texts, including the ancient Rig Veda, thought to have been written 1,000 years before the time of the Buddha, include many elementary descriptions of advanced scientific thought. Scientific knowledge was already well-planted during the Buddha's lifetime. Using the simple vernacular of the day, the Buddha spoke of many scientific concepts that are today being verified by science. Understanding the true meaning of the original Pali text is critical in order to elucidate Buddha's scientific references, which he approached in a quasi-philosophical manner in order to make plain the exact meaning of his teaching.

## PART 2: Material Reality of the Physical World

Take a moment to contemplate the immense amount of information about the material reality that humankind has accumulated. For example: We know that an atom is the smallest unit of ordinary matter. Matter is any substance that has mass, and takes up space by having volume. A human being is composed of matter. On the atomic scale, a human being is comprised of approximately  $7 \times 10^{27}$  atoms. That's:

7 x 10,000,000,000,000,000,000,000,000  
[70 Octillion]

In a single human cell there are  $10^{14}$  atoms or 100,000,000,000,000 (100 trillion). Each atom is energy. Without going into a detailed description of how the energy of an atom is determined, let's look at the total energy available from a single hydrogen atom. A joule (pronounced jool) is a measurement of electrical energy. One joule is the amount of electricity needed to light a 1 Watt LED for one second. The number of joules in a single atom of hydrogen is 90,590,000,000,000 joules or approximately 91 trillion joules! That is about 25 billion kilowatt-hours in a single atom.

<sup>10</sup> Bimbisara, King: <https://en.wikipedia.org/wiki/Bimbisara>

<sup>11</sup> Rajagriha: <https://en.wikipedia.org/wiki/Rajgir>

When calculated at the atomic level, the amount of energy contained in a human being is roughly 89,602,639,569 Joules or 89,603 Mega Joules. The typical human body (between 70 to 100 kilograms) equals as much energy output as 30 nuclear power plants over the course of one year. Also, from the atomic and sub-atomic levels, there is utterly no difference between you and billions of other people. So, why do we think that we are different than one another? What creates this concept of separateness? Is it personality, characteristics, language or all of these? Yes, and more. However, all of these things are mental constructs and perceptions. On the atomic level, differences in skin color, shapes, hair, height, and so on, contain no differentiating properties. We are all a heap (*khandha*) of atoms, and we are literally all connected.

In the 19<sup>th</sup> Century, scientists began peering into the atomic world of the atom and discovered electrons, protons, and neutrons. Exploring even deeper, during the 20<sup>th</sup> and into the 21<sup>st</sup> century, science discovered an entire hierarchy of particles that are the stuff of electrons, protons and neutrons. This exploration has led to the discovery of even smaller things called sub-atomic particles. [See chart displayed in the Appendix, illustrates just how many different types of particles make up, not only our Universe but our body's as well.]

### PART 3: Ignorant about Ignorance

Lack of education and not knowing the true facts about something, wasn't the kind of ignorance the Buddha talked about. Rather, his teachings about ignorance (*avijjā*) focus on a state of mind, whereby a person does not understand the nature of reality or the truth about the World according to his teaching of *anicca*<sup>12</sup>. A person exhibits this *avijjā* (ignorance) because they don't see that the pleasures of this world cannot deliver permanent happiness. Therefore, they don't have the correct view of the World, meaning they are ignorant of the reality of the World beyond what we see and accept as consensually-based common knowledge.

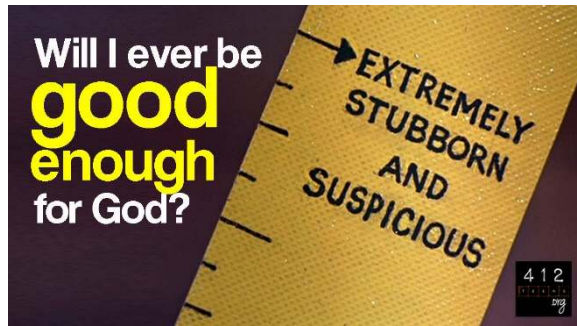
The mundane (worldly) meaning of ignorance refers to one who is uneducated, not aware or simply irresponsible. This kind of ignorance can be, and is often times self-induced or chosen, which is a mental mechanism used to protect oneself or one's interests from the criticism of others. We use self-induced ignorance to avoid responsibility of knowing something that threatens our comfort zones; threatens the things we choose to believe, our opinions, and our habits. We would rather not know the truth. Why? Because in most cases the truth may mean that we have to take responsibility for our ignorance; it is the thing that will require us to change our point of view, our perspective and our bad habits.

For example, we may not be able to give a rational reason why we do not believe in kamma or rebirth, because we remain stubbornly attached to the concept that this life is the only life that we will ever experience. Does this viewpoint really make sense when the laws that determine the entire physical Universe show that all existence is subject to cycles of destruction and rebirth or renewal?

How did you come to learn about the concept that this life is all you will ever have? How did you come to believe that this viewpoint represents the truth? Many people in the West labor under certain misconceptions, which are adopted through familial traditions, state, cultural religions, and social customs. What proof is there that this is the only life that you have? In a sense, not caring, lazily accepting something based on hearsay or believing there are no consequences from ignoring the truth, is a form of self-deception<sup>13</sup>. The patterns of ignorance are delusions that we accept based on things such as social consensus and religious blind faith. In other words, we become accustomed to wrong views (*miccha ditthi*) about the world in which we live. This state of delusion is no more evident in the views and beliefs fomented by sky-god religions that can provide no proof, link or connection to science of the phenomenal world.

<sup>12</sup> **Anicca**: "The inability to fulfil our desires or maintain the things that we like." <https://puredhamma.net/key-dhamma-concepts/anicca-dukkha-anatta-2/anicca-inability-to-keep-what-we-like/>. The fundamental understanding that all material existence is impermanent.

<sup>13</sup> **Self-induced Ignorance/Self-Deception**: Minimally, self-deception involves a person who seems to acquire and maintain some false belief in the teeth of evidence to the contrary as a consequence of some motivation, and who may display behavior suggesting some awareness of the truth. <https://plato.stanford.edu/entries/self-deception/>



Self-imposed ignorance happens due to an attachment to baseless opinions, beliefs, ideas and concepts. We believe old wives' tales that have no basis of fact. When true knowledge interrupts our belief systems, and causes us to question our long-held opinions, we feel threatened. We decry: "*I was comfortable believing what I did.*"

In the Abrahamic religious belief systems people have been taught that human beings are imperfect, flawed, helpless, and that you will never be good enough. The more helpless you are the more pleasing you are to the sky-God. What sort of message is that? A message of hope? Hardly. And, who sets the bar for perfection? Who told you that a celestial entity holds this power? Are you truly comfortable with this belief? What proof do you have that any of it is true?

Can you prove there is a soul? Do you know with certainty what takes place when you die? With regard to the question of human perfection, doesn't it make sense that in reality, you are actually the one who sets the bar for perfection...no one else has that authority, and no one else is responsible for how you live your life.

In the U.S. the state religion is Christianity, and purportedly is a Christian nation that looks to an all-omnipotent, all-wise, and all-powerful sky-God for guidance. Why, despite the power of this all omniscient sky-God, does the U.S. still find it necessary to maintain a nuclear arsenal for protection?

If the people of the U.S. were told that the next presidential election would not be held because Congress had received a message from God that he would choose the next president, no one, but the truly deluded, would believe it. Christian factions within the U.S. would certainly protest. Whose Christian denomination *would* win? Whose Christian denomination *should* win? Which Christian denomination is correct? Supposedly the Christian sky-God represents all denominations and there are no divisions. Right? We all know that this isn't true, because of the blatant competition that exists among the denominations, and we all know that chaos would ensue.

Centuries of proof to the contrary reveal that "In God We Trust," and "One Nation Under God," are only political tools, which governments use as a social mechanism in the same manner as every nation in history has done since the Roman Empire, ancient Greece, and ancient Egypt, to name a few among the thousands of other political entities throughout time<sup>14</sup>. The historical record shows the existence of mutual incompatibility among all of the religious doctrines of humankind. If there is a sky-God that exists, what is the reason for these deeply entrenched incompatibilities? The reason is because these religions do not emanate from a god, but were created by human beings.

However, the Buddha taught the opposite of what religion claims to be impossible. He taught that perfection is indeed attainable; that happiness and an end to suffering is real, and within our reach; that all human life is supremely precious, and that you alone are responsible for gaining happiness in life; that you alone are responsible for your actions; that no one is capable of judging you but yourself. His message was one of unparalleled truth about the nature of reality and the problems that face humankind. His teachings focus on a real hope of liberation from suffering, and what that means for humanity.

<sup>14</sup> **World Religions as a Factor in World Politics** (Summit held in Germany in May 2007): "While religious movements can wield great positive influence in national politics, too often religion is exploited and abused by political leaders who take advantage of ignorance and sow seeds of insecurity to maintain power. The combination of ignorance, religion and nationalism creates a dangerous potential for war. This powerful dynamic between religion and politics has spurred international conflicts and supported oppressive regimes worldwide, including the disastrous occupation of and degenerating war in Iraq and Afghanistan, the entrenched conflict in Israel/Palestine, the long civil war in Sri Lanka, and new violence in Thailand. In reality, political decisions often contrast sharply with the religious doctrines they purport to invoke. Fundamentalism is not an essential attribute to any religion, but characteristic to many."

### 3.1 Willful (Purposeful) Ignorance

*“Sixty years ago, I knew everything; now I know nothing; education is a progressive discovery of our own ignorance.” – Will Durant, Historian*

Humans engage in willful ignorance because they believe doing so is useful, as someone who attempts to maintain marital harmony will attest. At times, one can be pulled out of their willful ignorance with information that is contradictory to what they believe is true. Others are open-minded enough to consider alternative logic, contradictory to what they believe to be correct or true. Beyond mere willful ignorance a person can be trapped by self-deception when they believe false things with complete conviction. This is the case with some religious beliefs. Although having no form of actual proof whatsoever, modern minds are poisoned by false beliefs of ideas that developed hundreds and thousands of years ago, created by people whose social and political circumstances were the impetus.

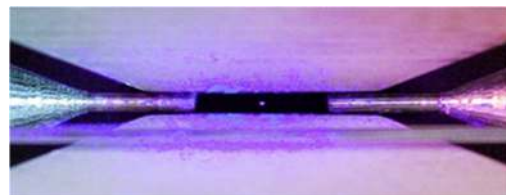
For example, self-deception is blatantly true of those who still believe that smoking or vaping marijuana is healthy, when in reality the smoke from marijuana use contains the same harmful cancer-causing agent known as Poly-nuclear Aromatic Hydrocarbons (PAH), and a tar concentration far denser than cigarettes. Yet, people continue to believe the marketing hype that marijuana use is not only beneficial, but is healthy and harmless. However, the psychological aspects of marijuana use are grossly misrepresented and ignored because of its profit potential.

Cognitively, people tend to adopt willful ignorance to advance a sense of emotional well-being. Although it is an illusion, people believe that willful ignorance helps them to avoid unpleasant things. However, delusions, like untruths, have no foundation on which to stand, eventually forcing one to confront reality. Persons who cling to the delusions created by willful ignorance however, limit themselves and their resources for seeing their own erroneous beliefs and taking steps to correct them. Fear is also an effective way of inducing ignorance, such as with political, religious, and social inaccuracies, myths and half-truths. Ignorance, in one form or another, has etched a pattern throughout human history. Within the following paragraphs, this pattern of ignorance is examined.

However, we should not for a moment think that such patterns are isolated to ancient times, nor should we presume that because we live in the Information Age that patterns of ignorance are diminishing. Despite our technology and science, humankind is worse off now than during the time of the Buddha. Humans have been indoctrinated by centuries upon centuries of conflicting religious contradictions about the foundations of life, happiness, and the reason for death. However, there does appear to be light at the end of the tunnel. Physics, namely Quantum Mechanics, is now coming around to an alignment with the knowledge and teachings of the Buddha, particularly with regard to consciousness, and rebirth. However, science is forcing a shift in our thinking about consciousness; forcing a shift from the paradigms of myth-based religious doctrine; forcing us to understand the truth about material reality, causing us to realize that long-held religious beliefs have no basis of fact.

Let’s look at a sample of patterns of ignorance in science from a historical perspective. That we live in the Information Age, so-called because we have huge amounts of information at our fingertips, has not caused us to become more informed or to be able to discern truth. Rather, the opposite is true. We are more confused; more inclined to believe untruths, and struggle to recognize actual truth. We are truly lost in a maze of misinformation.

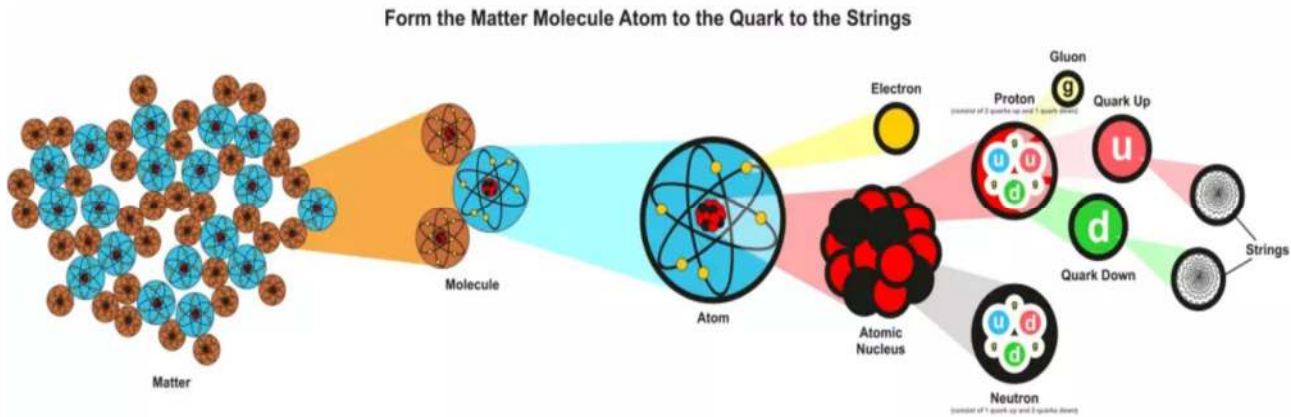
### 3.2 Historical Ignorance



Democritus, born in Abdera, Greece in 460 BCE, proposed the atomic theory stating: *“The universe is composed of two elements: the atoms and the void in which they exist and move.”* The Greek word *atomos* means something which cannot be divided. According to Democritus<sup>15</sup>, atoms are miniscule quantities of matter, hypothesizing that atoms are indestructible unit of nature, differ in size, shape and temperature, which are always moving, and are invisible. He posited that atoms are infinite in number. His theory was created in 465 BCE, yet they went completely dark for the next 2,000 years until 2018 when scientist David Nadlinger photographed a single atom (*pictured above*).

<sup>15</sup> Atomic Theory of Democritus: <https://plato.stanford.edu/entries/democritus/#2>





In 1805, the English scientist John Dalton (1766-1844) postulated the existence of atoms<sup>16</sup> stating some of the exact same things that Democritus stated 2,000 years earlier:

- Elements are made of extremely small particles called atoms
- Atoms of the same element have the same characteristics, including size and mass
- Atoms of different elements vary in size, mass, and other characteristics
- Atoms cannot be created or destroyed, or broken down into smaller particles
- Atoms of different elements combine in whole-number ratios to form chemical compounds
- Atoms are combined, separated or rearranged in chemical reactions

Aristarchus, born in ancient Samos Greece, around 310 BCE, was celebrated as the leading mathematician and scientist of his time. Around 280 BCE, he developed his “moving Earth theory<sup>17</sup>,” which was rejected by Ptolemy. It wasn’t until nearly 1500 years later in 1510 CE that Copernicus began work on his theory of heliocentrism. However, because of the way in which the Catholic Church treated Giordano Bruno<sup>18</sup> (burned him alive) and Galileo Galilei<sup>19</sup> (imprisoned for life), Copernicus knew that he could not publish his work until after his death.

As was similar with Copernicus, who was not directly persecuted by the Church, many scientists of the Age, particularly before the 19<sup>th</sup> century, were very well aware of the risks of making their discoveries public. The early influence of the Abrahamic religions discouraged both scientific discovery and inquiry. It remains a fact that throughout recorded history humankind has wasted immense amounts of time, opportunity, and knowledge that could have helped to explain human existence. Scientific discoveries over the last 100 years have revealed that there is much more to our existence than previously known.

### 3.3 Physics: Discovery and Re-Discovery

It wasn’t until 1897 that J.J. Thompson discovered the electron<sup>20</sup> while experimenting with cathode rays. In 1916, Albert Einstein created his famous scientific work known as Special Relativity and General Relativity<sup>21</sup>, which explained the malleable properties of space and time, revealing that space and time are intertwined in ways that scientists had never previously realized. The most significant consequence of Einstein’s theories, which have been proven to be correct many times over, reveals that matter and energy are interchangeable. ( $E = mc^2$  where ‘E’ stands for energy, ‘m’ for mass, and ‘c’ the speed of light multiplied by itself).

<sup>16</sup> John Dalton Atomic Theory: [https://en.wikipedia.org/wiki/John\\_Dalton#Atomic\\_theory](https://en.wikipedia.org/wiki/John_Dalton#Atomic_theory)

<sup>17</sup> Aristarchus Moving Earth Theory: [https://en.wikipedia.org/wiki/Aristarchus\\_of\\_Samos#Heliocentrism](https://en.wikipedia.org/wiki/Aristarchus_of_Samos#Heliocentrism)

<sup>18</sup> Life of Giordano Bruno: <https://plato.stanford.edu/entries/bruno/#Life>

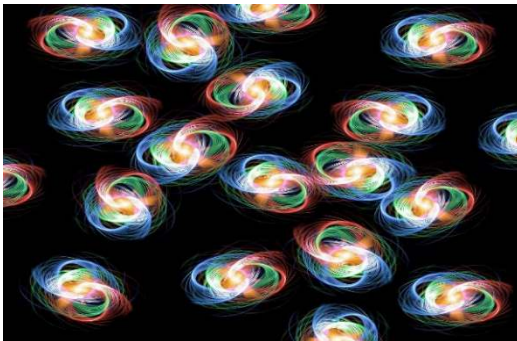
<sup>19</sup> Galileo Galilei & the Church: <https://plato.stanford.edu/entries/galileo/#GaliChur>

<sup>20</sup> J.J. Thompson-Discovery of Electron: [https://en.wikipedia.org/wiki/J.\\_J.\\_Thomson#Discovery\\_of\\_the\\_electron](https://en.wikipedia.org/wiki/J._J._Thomson#Discovery_of_the_electron)

<sup>21</sup> Einstein-Relativity: [https://en.wikipedia.org/wiki/Theory\\_of\\_relativity#Development\\_and\\_acceptance](https://en.wikipedia.org/wiki/Theory_of_relativity#Development_and_acceptance)

In 1917, Ernest Rutherford discovered the proton<sup>22</sup>, and in 1932 James Chadwick discovered the neutron<sup>23</sup>. Since then, scientists, nuclear physicists, particle physicists and quantum physicists have made massively important discoveries of sub-atomic level particles, some of which are considered to be elemental substances of the Universe. Sub-atomic particles are far smaller than the components of the atom; electrons, protons and neutrons.

In 1964, Murray Gell-Mann and George Zweig proposed the existence of an elemental particle known as a Quark. In 1968 the Stanford Linear Accelerator Center confirmed the existence of the Quark. In 1995, the Fermi Lab confirmed the discovery of different types of Quarks. The smallest particle ever recorded is known as a string, which is even smaller than a neutrino. A string is roughly  $10^{-33}$  centimeters in length or about a millionth of a billionth of a billionth of a billionth of a centimeter (1 centimeter = 0.3937008 inch). Earlier, in 1964, James Higgs, a theoretical physicist, wrote a paper that would become the precursor to the discovery of the Higgs boson. Initially, his paper was rejected, and the Higgs mechanism may have been doomed to sit on those dusty shelves of forgotten scientific theories forever. However, fast forward 48 years to July 4, 2012, when CERN announced the discovery of the Higgs Boson<sup>24</sup>.



*Photograph of Higgs-Boson Particles*

It is a curiosity indeed that between the turn of the nineteenth century up to today, this seemingly sudden explosion of scientific discovery comes on the heels of the steady global decline of religion<sup>25</sup>. As scientific discoveries began to reveal the reality of nature, people began to accept that disease was not punishment wrought on humans by a sky-god, and that there was a rational, scientific explanation for natural occurrences in nature. Religion no longer has a stranglehold on “why.” An essay written by commentator Aaron Freeman broadcast on NPR (National Public Radio)<sup>26</sup> sums up the modern-day focus of who it is that has replaced priests, ministers, pastors and imams.

*“You want a physicist to speak at your funeral. You want the physicist to talk to your grieving family about the conservation of energy, so they will understand that your energy has not died. You want the physicist to remind your sobbing mother about the first law of thermodynamics; that no energy gets created in the universe, and none is destroyed.*

*You want your mother to know that all your energy, every vibration, every Btu of heat, every wave of every particle that was her beloved child remains with her in this world. You want the physicist to tell your weeping father that amid energies of the cosmos, you gave as good as you got.*

*And at one point you’d hope that the physicist would step down from the pulpit and walk to your brokenhearted spouse there in the pew and tell him that all the photons that ever bounced off your face, all the particles whose paths were interrupted by your smile, by the touch of your hair, hundreds of trillions of particles, have raced off like children, their ways forever changed by you.*

*And as your widow rocks in the arms of a loving family, may the physicist let her know that all the photons that bounced from you were gathered in the particle detectors that are her eyes, that those photons created within her constellations of electromagnetically charged neurons whose energy will go on forever.*

<sup>22</sup> Ernest Rutherford-Discovery of the Proton: <https://cerncourier.com/a/rutherford-transmutation-and-the-proton/>

<sup>23</sup> James Chadwick-Discovery of the Neutron: <http://large.stanford.edu/courses/2018/ph241/kuppermann2/>

<sup>24</sup> Higgs Boson: <https://home.cern/science/physics/higgs-boson>

<sup>25</sup> In U.S., Decline of Christianity Continues at Rapid Pace: Pew Research: <https://www.pewresearch.org/religion/2019/10/17/in-u-s-decline-of-christianity-continues-at-rapid-pace/> (2019) | U.S. Public Becoming Less Religious (2015): <https://www.pewresearch.org/religion/2015/11/03/u-s-public-becoming-less-religious/> |

<sup>26</sup> Aaron Freeman-National Public Radio commentary: National Public Radio (2005) <https://www.npr.org/templates/story/story.php?storyId=4675953>

*You can hope your family will examine the evidence and satisfy themselves that the science is sound and that they'll be comforted to know your energy's still around. According to the law of the conservation of energy, not a bit of you is gone; you're just less orderly."*

### 3.4 Why all of this Talk about Science?

Scientific discoveries throughout the ages has shaped human lives. Science defines how we live, our intellectual abilities, how we view our place in the nature, and our health. There was a time when religion was science. Both were practiced under one authority, the church. However, science has revealed many of the things that were once completely unknown by humankind. We don't need religion to tell us that the Earth's climate is changing, because we have scientific knowledge that tells us so. We don't need religion to tell us that eating the wrong foods is unhealthy. We have scientific reasons that explain why this is so.

The Buddha understood this as well. He constantly pointed people toward an understanding of the nature of reality. His teachings touch on the very core of what modern science has discovered about nature and the human condition. Everything that was written about science, prior to this section, the Buddha already knew. How do we know this? His teachings point directly to the causational nature of reality. Perhaps the Buddha did not have the terminology we use, such as is the case in Quantum Mechanics, but his teachings point to the very same conclusions that modern science has discovered.

Now, for the average person to study these things and to understand them, can be bewildering and complicated, particularly without a complete understanding of the Pali language. It is not difficult to connect the teachings of the Buddha with modern science. But, rarely do we give any thought or consideration for the immense scientific advancements modern humankind has achieved. Beginning with the invention of the transistor in 1947, electronic devices have not only become more common, but have proliferated every sphere of human life. Because of these advancements humankind has become accustomed to an accelerated rate of technology.

It took us some 125 years to acclimate to the telephone, but only ten years to cell phones, and a much shorter time for computers and the Internet. Rapid scientific advancement in nearly every field imaginable, from medicine, chemistry, to electronics, have decreased humankind's threshold for anticipation, and decreased our perception of time. Despite being able to do many things simultaneously and rapidly, has not provided us with the perception of more time, but less time.

Another reason for including all of this information about science, is that it reveals that the foci of humankind for the last century or so has been on its relationships with technology. However, despite all of these advancements we have yet to tackle the most fundamental questions affecting humankind, why do we suffer; why do we get sick and die; what happens after we die, and what is consciousness?

Of what practical purpose is all of this scientific advancement if humankind is no closer to answering these critical questions? Is that not the goal of science; to better the lives of humanity? With some certainty, we have fundamentally come to discover various things that explain our material world, and to some extent our mental world. All of the aforesaid science reveals for certain that everything is made of energy, and that this energy cannot be created from nothing nor can be destroyed. How does this fact relate to the quality of our existence? How does this fact relate to our death or that we have conscious awareness?

The Buddha gave definitive answers for all of these questions. However, because modern humans have drifted so far astray from that which cannot be explained in material terms, we discount *a priori* things that suggest no materiality. Given the logical sequence of the Buddha's teachings regarding birth, death and consciousness, surely science should be able to connect what has been discovered about the material world to the Buddha's teachings, opening the possibility that he was correct about the nature of reality.

If all of the aforementioned science tells us anything, it should tell us that humankind is capable of looking beyond what is known to discover the unknown. At no other time in history has science been in a position to consider the probability that what the Buddha taught is true. At no other time in history is science poised to look beyond public consensus or religious influence as it is now.

An examination of whether there are correlatives between science and the Buddha Dhamma is expanded further in this essay, but first, let's examine the connection between ignorance, and religion's role in thwarting the scientific truths about the nature of reality. What was the purpose of their hegemonial efforts to preserve their grip on the minds of humankind? The reasons behind this are known, the record of which is clear and blatant.

#### PART 4: Death, Gods & Politics

Our entire existence is dependent on the flux of infinitesimally small physical elements, most of which are not visible to the naked eye. This knowledge is, and has been, the enduring legacy of science. Religion's contribution to the World has not resulted in any clarification of the causes or reasons for the human condition. Rather, history reveals that religion has never been anything more than a parapsychological phenomenon. Scientific discovery since the time of Democritus, humankind has come to understand more about itself, the Universe, and the human condition in the last 100 years of science than it has in the last 2,000 years of religion.

In this respect, science appears to be compounding the parapsychological phenomenological nature of religion, which is all, it seems, religion is able to offer. Religion cannot contend with the appeal of modern science. In today's psycho-material World a religion can only be as good as its scientific credentials; alas the appeal of religion is falling rapidly. Answering scientific questions through religious orthodoxy is a thing of the past; a past that reveals a very sorry history indeed.

Is it not, by now, evident that one's own religious convictions do not stem from a reasoned outcome of a dispassionate evaluation of scientific reality? History has proven that religious conviction is a demonstrably false assessment of the human condition in general. Religious social forces, once predominant through religious orthodoxy, can no longer stand up against the empirical evidence of science. Religious introspection thus reveals itself to be nothing more than a parapsychological phenomenon. Still, you may wonder what any of this has to do with the Buddha Dhamma. The purpose of this little trip down the scientific discovery memory lane is to highlight two things.

**First**, to highlight the disproportionate gaps between scientific discoveries, and the acceptance of those discoveries that, although having existed throughout the ages, were ignored and thwarted by religious pressure. Humankind, it seems, requires fear and a threat to dislodge us from stubbornly-held beliefs, shaking us from apathy forcing acceptance of the truth about the nature of reality. This certainly is the case with regard to Ecology and Climate Change. As early as 1856, several scientists revealed that there is a potential for greenhouse gases to accumulate in the atmosphere and cause a warming effect<sup>27</sup>. Early in the 1950s and 1960s, people like Rachel Carson<sup>28</sup> began ringing the ecology warning bell. Skepticism and disbelief may well be an inescapable condition of the human species, but it is not naturally occurring.

**Secondly**, all human discoveries through science, result from humankind's need to understand our physical and internal worlds. The need to know is what fuels our search to explain who we are, why we exist, why we are here, where we came from, and where we are going. We can trace this human proclivity back throughout the most distant recesses of history. At times, don't we look back with incredulity and snigger at some of the outlandish concepts that human beings invented in an attempt to explain natural phenomena?

<sup>27</sup> History of Climate Change Warnings: <https://www.theguardian.com/science/2021/jul/05/sixty-years-of-climate-change-warnings-the-signs-that-were-missed-and-ignored> | <https://medium.com/swlh/the-people-who-first-warned-us-about-climate-change-85ffdc0dc942>

<sup>28</sup> Carson, Rachel-Silent Spring: [https://en.wikipedia.org/wiki/Rachel\\_Carson#Silent\\_Spring](https://en.wikipedia.org/wiki/Rachel_Carson#Silent_Spring)



#### 4.1 Death Gets a Reason and a Cause

At the top of the list of the most common questions about human existence are why it is that human beings die. Death, like so many other seemingly unexplainable things, remained an impenetrable mystery throughout history. Until that is, human beings began developing crude social and political systems. Suddenly death had a reason and a cause. Developing from those crude social and political systems, religion was born. It was religion, not science, that provided a reason and a cause for death. However, religion has never been able to explain the purpose of death. Rather religion was a way in which humankind could explain phenomena for which there was no clear answer. Thus, in ancient times we have the creation of conceptual gods, such as sky gods, thunder gods, volcano gods, rain gods, moon gods, river gods, plant gods, animal gods, death gods, birth gods, and many, many more. Ancient Indo-Aryan peoples, who developed the roots of the Hindu religion, had some 100,000 gods<sup>29</sup>.

For many centuries there was no differentiation between religion and science. Religion *was* science. Eventually, and not unlike the way in which humankind seeks a “Grand Unified Theory of Everything<sup>30</sup>” today, ancient peoples created a similar theory. This Theory of Everything was accomplished in ancient times by creating a single entity in whom humankind could place responsibility; place blame, and could explain all of existence.

God-entities were alone responsible for the condemnation and redemption of humankind. To have one invisible supreme being was logical at the time. This was a way in which everything could be explained. When something happened, the god-entity did it (e.g. Act of God). Anything rationally unexplainable, such knowledge became the sole domain of the god-entity. But, in many respects, religion began with humankind’s inability to reconcile death. A logical conceptual progression developed, theorizing that the god-entity had a hand in death. This can be seen from the earliest archaeological accounts of human reaction to death, which comes from 430,000-year-old Sima hominins, who are related to Neanderthals<sup>31</sup>. With these new concepts also came the idea of some form of life after death.

Being unable to reconcile death, ancient peoples began to interweave ideas that this life was not all that there is; that some form of existence took the place after life had ceased. However, throughout history, the record clearly shows that death, and the reason for it, was never explained, until the Buddha.

#### 4.2 Politics Discovers God

In ancient times when populations began to increase, rulers began realizing that the concept of all-powerful, omniscient invisible god-entities represented a perfect political partner. With authority from god-entities, the behavior of entire populations could be manipulated for the purpose of maintaining, promoting, and protecting political hegemony. This is as much true for the ancient Indo-Aryans, Egyptians, Romans, and Mesopotamia, as it is for the United States today<sup>32</sup>.

<sup>29</sup> Vedic gods: <https://www.templepurohit.com/vedic-gods/>

<sup>30</sup> Grand Unified Theory: [https://en.wikipedia.org/wiki/Grand\\_Unified\\_Theory](https://en.wikipedia.org/wiki/Grand_Unified_Theory)

<sup>31</sup> When Humans Began to Understand Death: <https://www.discovermagazine.com/planet-earth/when-did-ancient-humans-begin-to-understand-death>

<sup>32</sup> **The Political as the Religious: Civil Religion** | Hugh B. Urban (2005) “One of the more interesting and ironic consequences of the rise of modern secular nation states is the emergence of powerful new forms of civil symbolism, mythology and ritual practice. In a sense, the space opened up by the separation of religion and politics seems to have been filled in many cases by a modern state that now assumes a kind of quasi-religious power, invested with autonomy, disciplinary control and potential violence, for which citizens are called upon to make the ultimate sacrifice. In contrast to a form of religious nationalism, however, a civil religion does not support any one particular tradition, but instead advocates a sufficiently ambiguous sort of divine authority (such as God) and a sufficiently generic set of beliefs (a rational order to the universe, the immortality of the soul and judgment for good and evil actions) that can encompass many different faiths without alienating too many minority groups. -Continued below, pg. 15

Around the same time of the ancient Hebrews and Abraham, around 2000 BCE, the ancient Indo-Aryan peoples migrated into India<sup>33</sup>. It was these Aryans who are most likely responsible for writing the Vedas between 3000 and 1700 BCE. They also created a supreme god, which they named Brahma<sup>34</sup>; God of Creation; Epitome of knowledge, creator of the Vedas; and Creator of the Universe. In his autobiographical account, Mohandas Gandhi (1869–1948) made the now famous observation that: *"Those who say religion has nothing to do with politics do not know what religion is."* (Gandhi, 1940, p. 371)

Regardless of which hood we look under, the mechanisms that emerges from history is that all of humankind's inventive concepts to explain natural phenomenon harkens back to religion, and one does not have to look far to see the political connections. Also evident is that religions have had to re-tool their doctrine and dogma under the weight of scientific proof throughout the

centuries. Not a single ancient civilization didn't augment the governance and growth of their society with gods and religion. In ancient Egypt there was no demarcation between where the Pharaoh left off and politics began.

Web site ReligionWiki published:

*"Recorded history reveals that religions are at the root of slavery, racial segregation, sexual discrimination, discrimination against homosexuals, protection of gun rights, both for and against capital punishment, denying scientific research (in general and in specific areas such as stem cell research), subverting science education, and undermining sex education. These policies have no justification aside of religious dogma, which was invented centuries ago to address a very different context than the one we face today. Religious dogma and ideals not only lead to fanaticism, but are unrealistic in a complicated world."*

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The idea of a civil faith was first suggested by Jean Jacques Rousseau in the second half of the eighteenth century. Rejecting traditional religious institutions like Christianity as divisive and in fact corrosive of social unity, Rousseau called instead for "a purely civil profession of faith whose articles the sovereign is competent to determine, not precisely as religious dogmas but as sentiments of sociability, without which it is impossible to be a good citizen or a faithful subject" (1762: Chidester, 1988, p. 82). The basis of Rousseau's civil faith was fairly minimal, asking only belief in an all-powerful deity, the survival of the soul after death, the reward of the good and punishment of wicked, and above all a commitment to the sanctity of the social contract.

Arguably one of the most powerful examples of civil religion in the modern era has emerged within the United States. As G. K. Chesterton observed, *"America is the only nation in the world that is founded on a creed"* (Chidester, 1988, p. 87). Despite its ostensible separation of the religious and political spheres, the U.S. has also developed its own set of creation myths (Exodus from British tyranny, the first Thanksgiving: its founding fathers, and a system of symbols and rituals. From the Annuit Coeptis ("God has smiled on our beginnings") and Novus Ordo Seclorum ("New Order for the Ages") on the dollar bill, the United States has been imagined in mythic terms as a nation formed under divine providence and guided toward a sacred destiny. The United States also gave birth to an array of civil religious holy days, such as the Fourth of July and Thanksgiving (both ritual reenactments of national creation myths), Presidents' Day, Veterans Day, Flag Day, Memorial Day, among others. The celebration of Memorial Day in particular constitutes a kind of "cult of the dead which organizes and integrates the various faiths, ethnic and class groups into a sacred unity" (Warner, 1959, p. 249). This deeply ingrained civil religious faith only became more intense during the decades of the cold war, when the United States sought to distinguish itself as clearly as possible from the "godless communism" of the Soviet Union. Thus, in the 1950s, the phrase "In God we Trust" was added to the dollar bill, while "One Nation under God" was added to the Pledge of Allegiance, a vow of faith mandatory in every public school. This American-style civil religion would find new, even more complicated expressions after the destruction of the World Trade Towers in 2001, as religious rhetoric was marshaled in a variety of ways to ensure that God would "continue to bless America" against a new "axis of evil" (Lincoln, 2003, pp. 19–32). <https://www.encyclopedia.com/environment/encyclopedias-almanacs-transcripts-and-maps/politics-and-religion-overview>

<sup>33</sup> **Indo-Aryan Migration:** Aryan tribes who migrated into northern India over 3,500 years ago came from Bactria-Margiana culture (which would be what is now modern-day northern Afghanistan). If you want to find Aryans, look for them in Pakistan and India - they're the descendants of the Indo-European tribes who invaded the Indian subcontinent about 3500 years ago, and so are of proto-Iranian (Aryan) descent. Aryans began to spread across Europe 4900 years ago - the ancestors of the settlement of the Aryans now living on the Central Plain, 4000-3600 years ago arias appeared in the Southern Urals. As they migrated into India 3,500 years ago they left a deep genetic mark on the way - 64% of Tajiks and Kyrgyz carry R1a1 gene. <http://www.world-history-education-resources.com/articles-1/aryan-tribes.html#0>

<sup>34</sup> **Brahma:** <https://en.wikipedia.org/wiki/Brahma> | <https://www.worldhistory.org/Brahma/>

*More often than not, they are promoting the traditionalist interests of powerful groups. Religions often promote intolerance of other groups by campaign on diverse topics as clothing, homosexuality, sexuality, abortion, contraception (which causes more unwanted children) and women's rights.*

*However, when challenged on their harmful policies, as a shield they cite God's justification as represented by the Bible. When their political beliefs are challenged God is employed to intervene by claiming if their political beliefs are challenged, their religion is also under attack.*

*Some political thinkers, such as Antonio Gramsci, have argued that Christianity is a barrier to societal improvement. If the world is going to end or be governed by fate, then people see no need to prevent or repair difficult problems, such as protecting the environment, conserving resources or investing in long-term research. Believers are encouraged to accept the inevitability of human helplessness and suffering as part of the cosmic order or the will of God.*

*From the earliest beginnings of recorded history, religion is shown to open doors to magical thinking, by allowing oneself to accept that the lack of dis-proof makes something possible. Many religions specifically teach that believing things with no evidence ("faith") is actually the best thing, and that if evidence contradicts a belief, the evidence should be discounted. This undermines the pursuit of science, and retards progress. Taken to an extreme, this can lead to literalist belief, such as belief in talking snakes, that people can live inside of whales and that killing infants can be justified (Hosea 13:16, 1 Samuel).*

*Religions often teach myths and falsehoods as truth. Creationism and the "Great Flood" have been disproved for a hundred years, yet those beliefs continue to be common (46% of Americans believe the earth was created in the last 10,000 years, and 60% believe in the literal Great Flood). Historically, it took an equal amount of time to achieve the general acceptance that the sun is the center of the solar system and that the earth moves through space. A particularly damaging example is the concept that mankind was kicked out of the Garden of Eden, which implies that the earth is a prison, and does not deserve to be respected.*

*Other examples include the inferiority of women, unfounded dangers of psychology and faith healing. Religions [promote faith] by not questioning their teachings. Abrahamic religions (Judaism, Christianity and Islam) teach that mankind is literally punished and suffer disease and death due to thinking. Teaching against gaining knowledge and having independent thought leads to black and white thinking in all aspects of life, such as immigration is bad, lower/higher taxes on the rich result in a stronger economy or guns cause/prevent crime.*

*While a person may reach any of these conclusions on their own, religion tends towards simplistic absolute answers. This also leads to a general avoidance of solving the root cause of difficult social problems, and instead a focus on symptoms (e.g. focusing on gun control to prevent crime, to the exclusion of addressing poverty, mental health or organized crime).*

*Religious authority figures are given respect as subject-matter experts in everything. That is to say, if you want to know about particle physics, people would naturally trust the answers of a physicist over a soy-bean farmer. However, on the topic of planting crops, you would naturally trust the farmer over the physicist. People have an innate ability to weight the reliability of the source of information. However, ministers skew this reaction, despite not having subject matter expertise.*

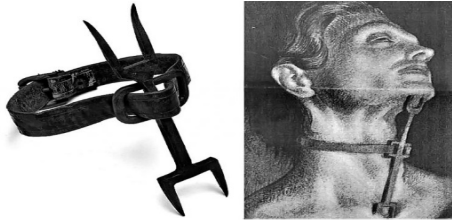
*People often ask the opinion of religious leaders about parenting, marriage, philosophy, sociology, etc. Aside from receiving potentially bad counseling advice or misinformation, ministers can unduly influence politics. Seventy-nine percent of Christian Americans believe it's an obligation to vote Republican.*

*As an example, people have given millions to Billy Graham based solely on his claim that God needed the money, a pastor has attempted to cure children of gayness by having sex with them, or stay in bad marriages, all based on false expertise. In addition, people who claim expertise as psychologists or medical practitioners require being licensed, creating a bias towards religion for those unable to afford a properly trained professional.”<sup>35</sup>*

*Science eventually began to peel back incorrect religious beliefs, such as the likely cause for the prophecies of the ancient Greek Oracle of Delphi, which were due to the oracle being affected by Ethylene gas fumes that seeped into the temple chamber from groundwater<sup>36</sup>.*

<sup>35</sup> Religion is harmful to society: [https://religions.wiki/index.php/Religion\\_is\\_harmful\\_to\\_society](https://religions.wiki/index.php/Religion_is_harmful_to_society)

<sup>36</sup> Oracle of Delphi: [https://www.erowid.org/chemicals/ethylene/ethylene\\_history1.shtml](https://www.erowid.org/chemicals/ethylene/ethylene_history1.shtml)



*Heretic's Fork of the Medieval Catholic Church*

Ideas or concepts that weakened or threatened political, social and religious doctrine and dogma, resulted in acts of immediate repression, torture, condemnation, ignominy and death. On the one hand, human beings are capable of the most incredible depths of ignorance, and on the other, possess the ability to step beyond ignorance and discover the most incredible facts about the truth of the nature of reality. Historically, as it is today, truth has its consequences. But, why should there be any negative consequences when it comes to truth?

#### *4.3 "Come into my web, said the spider to the fly."*

Given the testimony from centuries upon centuries of proof that religious-like myth has been unsuccessful at explaining the problems of human existence, and equally unsuccessful at providing any solutions: Should not our rejection of this system now be complete? The result of religious doctrine, responsible for the creation and support of the myth of a supreme entity, has proven itself to be the single most destructive and repressive force of knowledge and freedom from suffering known to humankind.

Humankind is at a fulcrum point of discovery, and hopefully with knowledgeable understanding that the ancient religions that propounded faith in an invisible entity, simply can't provide any plausible probability of the truth of such myths. Does this mean science has replaced religion? *I certainly hope so!*

Have we reached a stage in our knowledge and understanding of the Universe, where we can have confidence in the fact that some invisible supreme entity is not responsible for human happiness? Let's look at some real cogent reasons why the answer to this question is yes.

Religious doctrine and dogma often times must change to adjust to current knowledge. When a scientific discovery is made, having the potential for threatening doctrine, religions quickly adjust and absorb the implications of the new knowledge. However, you will not find that this kind of adjustment does not exist in the Buddha Dhamma. Why? Buddha taught that only experience is real and true. When one experiences the Buddha Dhamma one gradually begins to realize that the truths contained therein are real.

In a now famous study conducted in 2010, which involved 18,192 people from 23 nations worldwide, fifty-two percent of the people polled agreed that "...deeply held religious beliefs promote intolerance, exacerbate ethnic divisions, and impede social progress in developing and developed nations alike.<sup>37</sup>"



Philosopher and author Voltaire wrote:

*"Christianity is most admirably adapted to the training of slaves, to the perpetuation of a slave society; in short, to the very conditions confronting us to-day. Indeed, never could society have degenerated to its present appalling stage, if not for the assistance of*

*Christianity. Christianity is the conspiracy of ignorance against reason, of darkness against light, of submission and slavery against independence and freedom; of the denial of strength and beauty, against the affirmation of the joy and glory of life. If we believe absurdities, we shall commit atrocities."*

<sup>37</sup> **Is Religion a Force for Good in the World?** "Those who believe religious beliefs promote intolerance, exacerbate ethnic divisions, and impede social progress in developing and developed nations alike (52%) by country and region: Sweden 81%, Belgium 79%, France 76%, Spain 75%, Great Britain 71%, Japan 71%, Australia 68%, Canada 64%, Germany 64%, Poland 58%, Turkey 57%, Argentina 56%, Hungary 55%, Italy 50%, Mexico 49%, Russia 41%, South Korea 38%, United States 35%, Brazil 33%, South Africa 33%, India 31%, Indonesia 9% and Saudi Arabia 8%; Europe 68%, G-8 Countries 59%, North America 49%, LATAM 46%, APAC 43%, BRIC 35% and Middle East/Africa 33%. <https://www.ipsos.com/en-us/news-polls/ipsos-global-dvisory-religion-force-good-world-combined-population-23-major-nations-evenly-divided>



The *Organization for Economic Co-operation and Development* released an analytic study of religious influence in the World, stating:

*“...according to this multivariate analysis, takes-into-account a plethora of indicators of societal well-being, those states in America with the worst quality of life tend to be among the most God-loving/most religious (such as Mississippi and Alabama), while those states with the best quality of life tend to be among the least God-loving, and least religious (such as Vermont and New Hampshire). Those democratic nations today that are the most secular, such as Scandinavia, Japan, Australia, the Netherlands, etc., are faring much better on nearly every single indicator of well-being imaginable than the most religious nations on earth today, such as Colombia, Jamaica, El Salvador, Yemen, Malawi, Pakistan, and the Philippines.”<sup>38</sup>*

The overwhelming statistics of the study reveals that the more secular a society, the better off they are socially, and economically, as well as being much happier. Countries and territories with large populations who believe in one form or another of an Abrahamic religion<sup>39</sup>, have greater incidences of homicide; higher violent crime rates; higher poverty rates; higher instances of obesity and diabetes; higher child abuse rates; lower educational attainment levels; lower income levels, higher unemployment rates; higher rates of sexually transmitted diseases; teen pregnancies, and higher incidents of sexual crimes. Given the claims touted by Abrahamic-based religions, shouldn't the opposite be expected? If religion provides solutions for the problems facing humankind, why then are the Abrahamic-based doctrines so ineffective?

## PART 5: Consciousness & Physics

### 5.1 Thought Experiments & the Hard Problem of Consciousness<sup>40</sup> & Rebirth

Democritus may have performed the first recorded thought experiment in history. Although not having the scientific means to prove his atomic theory, he was able to perform a thought experiment, piecing together the elements of the known physical and non-physical worlds. Since Democritus was able to do these centuries ago, might not it be the case that humankind is now capable of tying together the “hard problems of consciousness” or the issues surrounding death to in order to discover the answers? Perhaps with the hardest difficulties of consciousness, death and rebirth, the problem resides in the kinds of questions we are asking.

Like Democritus, while we may not have the sophisticated scientific equipment needed to prove our theories about consciousness, rebirth, or the problems of human existence, such as death, are we not at least capable of creating thought experiments that would put us squarely on the road to discovering better probable answers? Furthermore, research over the last 150 years provides evidence that humankind is inching closer to the truth about the nature of reality, and is now at a point where we could experience a major shift of understanding. Understanding that avoids the crippling dogma of religious myth that has imprisoned humankind for millennia. However, science may be approaching a point where contemplation of non-physical elements of human existence, including consciousness, are no longer considered heretical.

With regard to the atomic properties of the human body, when a body dies the energy contained in the physical body continues to echo throughout time, forever. How do we know this to be true? True, solely due to the knowledge of matter gained through Einstein's Relativity, and the Conservation of Energy. At this stage we are only referring to the “physical” body comprised of atoms, protons, electrons and neutrons.

<sup>38</sup> Organization for Economic Co-operation and Development: <https://www.psychologytoday.com/gb/blog/the-secular-life/201410/secular-societies-fare-better-religious-societies>

<sup>39</sup> Abrahamic Religions: [https://en.wikipedia.org/wiki/Abrahamic\\_religions](https://en.wikipedia.org/wiki/Abrahamic_religions)

<sup>40</sup> Hard Problem of Consciousness: [https://en.wikipedia.org/wiki/Hard\\_problem\\_of\\_consciousness](https://en.wikipedia.org/wiki/Hard_problem_of_consciousness)

In a strictly physical sense, humans are nothing but energy, and the Law of Conservation of Energy tells us that energy cannot be destroyed, under any circumstances. That energy cannot be created from nothing nor can it be destroyed, is a fact of nature that is proven true. This fact has major implications regarding the Buddha's teaching about death and rebirth. Everything is energy, including every aspect of the human being, including our consciousness, and the electro-chemical nature of our bodies and brains. Every aspect of the existence of the Universe observes and conforms to this natural law of energy. Why would it be any different for the life-force/life-energy of a human being?

There is an inherent problem with the Abrahamic religions with regard to this Universal Law of Energy. Doctrines of the Abrahamic religions make it practically impossible to apply the Laws of Conservation of Energy to human beings. Over the last two millennia, religions continue to habituate doubt that human beings conform to the same natural physical laws as the rest of the Universe. Quantum Mechanics has proven the impossibility that humans are not subject to or are not affected by the physical laws of the Universe, matter and motion.

One might imagine that human consciousness is an open system<sup>41</sup>, because human beings consciously interact, exchange and influence their surroundings, and vice versa. From acts born of intention, human beings certainly create, alter, and influence matter. But, that human beings interact with the surrounding does not mean that consciousness itself is an open system. If consciousness is a fundamental fixture of the Universe, then it could be compared to other fundamental constants such as gravity, the speed of light, and the laws governing the conservation of energy. Like energy or gravity, might it then not be outlandish to consider that consciousness might be an energy field? If so, this finding would have immense importance regarding the nature of human consciousness and the role of consciousness in death, and rebirth.

In the realm of the physical world; the realm of matter, everything must have a direct identifiable cause as either a singular cause or in combination of things that act together. While we are able to identify causes and effects, we are mostly blind to the conditions that create the causes in the realm of sub-atomic particles. What condition lies behind the creation of a Higgs Boson or is the Higgs boson a fundamental field that reacts with matter? Everything **non-physical**, must be a combination of matter and motion, otherwise a view of abstraction is accepted devoid of physical existence. Non-physical abstractions include things such as space, consciousness, energy, time, mass, gravity, mind, sound, and thought. We know these things exist, but *how* do we know they exist? Time, according to Einstein, is relative motion, but how do we know this?

All of the aforementioned non-physical phenomena are properties that effect physical nature. For instance, we ask what the conditions are that create time? Why does time conform to relative motion? What is the strong force that holds atomic nuclei together? I suspect, as do some physicists, that all of these things may be a result of consciousness. Perhaps we will discover that consciousness is the so-called mysterious dark matter glue of the Universe.

In the absence of a physics for non-material phenomena, there should be a physics of the abstract. We repeatedly fail to consider non-physical abstractions, such as the existence of consciousness, because we have become accustomed to only that which is observable in order to explain a causality, therefore enforcing bias toward only that which is observable. Physics seeks to find a physical link to consciousness, the brain, and what it is that creates mind. However, decades of research have proven that there is nothing physical about consciousness. We might be able to, as is presently evident, locate and identify certain physical elements within the brain that appear to react with, integrate or facilitate consciousness<sup>42</sup>, but again, consciousness is an abstract phenomenon that is non-physical.

<sup>41</sup> **Systems:** See "Systems" in Appendix

<sup>42</sup> **Hammeroff-Penrose:** (Research Review): <https://www-physics.lbl.gov/~stapp/PenHam.pdf>

The mistaken notion that physical components exist, which can explain consciousness, prevents us from looking deeper or casting our net wider for evidence of the abstract nature of consciousness. At present, all that physics seems capable of describing is what particles do; what natural constants do, not why or how they exist. Scientists are beginning to come around to the idea that consciousness may be a fundamental element of the Universe, meaning that everything in existence is as a result of consciousness. I suspect however, that whenever science discovers some new observable mass, such as that sound waves carry matter<sup>43</sup>, it feeds the hope that something similar may be discovered of consciousness.

### 5.2 Consciousness from the Physicist's Perspective

Max Planck, the Nobel Laureate who is known as the father of Quantum Mechanics, regarded consciousness as “fundamental,” and matter as “derivative from consciousness,” stating:

*“We cannot get behind consciousness. Everything that we talk about, everything that we regard as existing, postulates consciousness.”*

Eugene Wigner, another Nobel Laureate in Physics, stated that:



*“It is not possible to formulate the laws of quantum mechanics in a fully consistent way without reference to consciousness. It will remain remarkable, in whatever way our future concepts may develop, that the very study of the external*

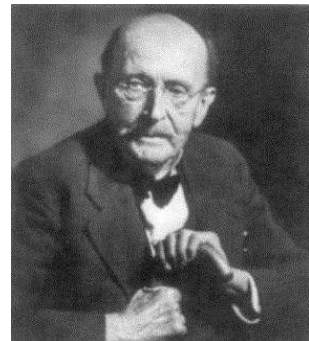
*world leads to the scientific conclusion that the contents of consciousness is the ultimate universal reality.”*

In an article published in Nature, Professor of Physics and Astronomy at Johns Hopkins University, Richard C. Henry states that:



*“A fundamental conclusion of the new physics also acknowledges that the observer creates the reality. As observers, we are personally involved with the creation of our own reality. Physicists are*

*being forced to admit that the universe is a “mental” construction. Pioneering physicist Sir James Jeans wrote: “The stream of knowledge is heading toward a non-mechanical reality; the universe begins to look more like a great thought than like a great machine. Mind no longer appears to be an accidental intruder into the realm of matter, we ought rather to hail it as the creator and governor of the realm of matter. Get over it, and accept the inarguable conclusion. The universe is immaterial, mental and spiritual.”*<sup>44</sup>



*“All matter originates and exists only by virtue of a force... We must assume behind this force the existence of a conscious and intelligent Mind. This Mind is the matrix of all matter.”*

Max Planck

Just as was theorized before the discovery of fundamental particles, having gained proof of their existence, science has recorded the action of these particles and how they regulate and affect the Universe: Might not consciousness and death also be approached in the same manner? Do we not now have a basis for devising logical thought experiments on the subject of non-physical phenomena of human existence, such that might explain consciousness and rebirth? Alas, while we may have scientific and logical basis for these things, we do not yet have a logical or probable explanation of the purpose for these things?

<sup>43</sup> Gravitational Mass Carried by Sound Waves:

[https://www.researchgate.net/publication/331462298\\_Gravitational\\_Mass\\_Carried\\_by\\_Sound\\_Waves](https://www.researchgate.net/publication/331462298_Gravitational_Mass_Carried_by_Sound_Waves)

<sup>44</sup> R.C. Henry: “The Mental Universe”; Nature 436:29,2005

### 5.3 Consciousness: An Elemental Field?

Scientists such as Richard C. Henry, James Jeans, Roger Penrose, Stuart Hammeroff, Anil Seth, philosopher David Chalmers, and many others, are beginning to understand that there has to exist a non-physical reality with regard to consciousness. Culminating in decades of research, science is beginning to develop theories that squarely point to the existence of a non-physical reality. To think otherwise is what I call the classical physics created “consciousness wall.”

It appears that no matter what the results Quantum experiments reveal, scientists realize that, in the end, they are faced with the problem that in order to produce any research results on the Quantum scale, consciousness is there, and must be addressed. Woven amongst all of the scientific commentaries and theories is an instinctual notion that there is something unseen on the other side of matter that not only affects matter, but causes elemental particles to act in the manner in which they do.

Presupposing that consciousness is an elemental field of energy, which I suggest could be symbolized by  $\odot$ , could be included into an equation where it is suspected that consciousness might play a role. Initially this may serve as nothing more than a placeholder, but it would begin the thought, the intention, of considering consciousness a part of the equational solution. Since the properties of consciousness as an energy field are at present unknown, consciousness could be treated as other elements, say for instance Dark Matter.

If consideration that consciousness is a form of dark matter, it would not appear to interact with the electromagnetic field; would not absorb, reflect, or emit electromagnetic radiation (such as with light), would make consciousness difficult to detect. Consciousness may be composed of some as-yet-undiscovered subatomic field. The primary candidate for consciousness would be a new kind of fundamental field that has not yet been discovered; perhaps with properties similar to WIMPS [*Particularly Weakly Interacting Massive Particles*].

## PART 6: The Answers may be Right Under Our Noses



*“Whether we like it or not, modern ways are going to alter, and in part, destroy traditional customs and values. Whenever we proceed from the known into the unknown we may hope to understand, but we may have to learn at the same time a new meaning of the word understanding.”*

**Werner Heisenberg** (Nobel Laureate)

If it is not clear that there exists an elemental structure of all existence, there should be by now. The record of humankind reveals our efforts to discover who we are, why we exist, why we die, and what happens after death?

All of the aforementioned points show that humankind is capable of developing and accepting theories of things that cannot be seen by the naked eye, nor that can be immediately proven. In particular, this is true of those things with regard to nature and the scientific arena. Why is this the case? Like Democritus, through intelligent observation, we can use what **is** visible; we can postulate theories based on the affects we see all around us, and “contemplate” the reason and cause of such natural phenomena.

One question that has always haunted humankind is: Why it is human beings suffer and die. Material science, such as Physics, while unlikely to discover a physical explanation for the forces behind consciousness, birth and death, is however beginning to at least inch toward contemplation of non-physical explanations for such things. The Buddha’s teachings, like Democritus’ atomic theory, was ignored by science for 2,000 years. The Buddha Dhamma is a science, which has existed right under our noses for millennia, but which has largely been ignored.

### 6.1 The Buddha Dhamma

For nearly 2,600 years, there has been in existence an explanation of both the physical and non-physical phenomena concerning humankind. Much of this science has alluded us and lain hidden for centuries, much like the theories of Democritus’ atom.



While there is a modern-day proclivity to define the teachings of the Buddha as religion, particularly in the West, close scrutiny reveals that he was able to explain the truth about the nature of existence, both physical and non-physical. However, the outstanding nature of the Buddha's teachings in no way implies, infers or otherwise indicates them to be religious in nature. That the Buddha Dhamma has been relegated to the vagaries of mythical religion has prevented scientists from scrutinizing his teachings as a source for understanding the nature of reality. The answers lie within his teachings of *gandhabba*, *cuti paṭisandhi*, *hadaya vitthu*, *kamma* and *jati* (rebirth).

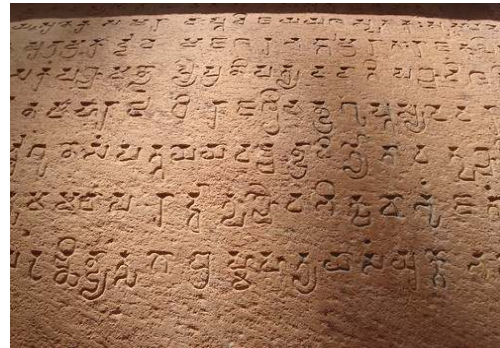
## 6.2 The Language of the Buddha

Before venturing into the science of the Buddha Dhamma, it is extremely important to understand why the Buddha chose the vernacular language of his time to teach. Most likely, Magadhi (magahi) was the language commonly spoken by the Buddha. Magadhi is a living language, which is closely related to the official language of the Pali texts. During the late 19<sup>th</sup> and early 20<sup>th</sup> centuries, academics set out to decipher the record of the Buddha's teachings, known as the Tipitaka. At that time, little was known about the Pali language in which the Tipitaka was written. Like the decipherment of Egyptian hieroglyphs by Champollion, subsequent translations of the Pali texts by other scholars saw an evolution of development in context and meaning.

While Pāli seems closely related to the ancient Indo-Aryan Vedic and Sanskrit dialects, it is not directly descended from either of these. Because the Buddha opposed the use of Sanskrit, a learned language, as a vehicle for his teachings, he encouraged his followers to use vernacular dialects, therefore, Pāli became the official language of the Tipitaka. In time, Buddha's orally transmitted teachings spread throughout India to Sri Lanka (c. 3rd century BCE), where they were written down in Pāli in the 1<sup>st</sup> century BCE.

The Pali language appears to have developed from an ancient pre-Buddha language of the Brihadratha dynasty (1700 BCE)<sup>45</sup> in a geographical area of India known as Magadha. Grammarian Kachchayano wrote of the importance of the Magadhi language:

*"There is a language which is the root (of all languages); men and Brahmans spoke it at the commencement of the kalpa (age), who never before uttered a human accent, and even the supreme Buddhas spoke it; it is Magadhi."*



Example of Later Magadhi Prakrit

A variation of old Magadhi is still preserved in the language of the Theravada Canon, which is called Pāli, which is the language in Vidiśā India that sent monks to Sri Lanka. Ancient monks memorized the Buddha's teachings in Pāli, and the language became accepted by the Sinhalese people of Sri Lanka as the 'language of the texts' (Pāli - Bhasa<sup>46</sup>). Therefore, Magadhi is perhaps the closest approximation to the original language of the Buddha.<sup>47</sup> From Magadhi developed the Sinhalese language, which is the closest modern language to the ancient Magadhi.

Unique to the Buddha's teachings however, known as the Buddha Dhamma, is evidence of his use of the Pāli language. Although the number of those who speak in Magadhi today is about 14 million, Magadhi has not been constitutionally recognized in India. Hindi is the official language used for educational purposes.

<sup>45</sup> Brihadratha dynasty: [https://en.wikipedia.org/wiki/Brihadratha\\_dynasty](https://en.wikipedia.org/wiki/Brihadratha_dynasty)

<sup>46</sup> Pali-Bhasa: "British Orientalist Robert Caesar Childers argued that the true or geographical name of the Pali language was Magadhi Prakrit, and that because Pāli means "line, row, series", the early Buddhists extended the meaning of the term to mean "a series of books", so pālībhāsā means "language of the texts". [https://en.wikipedia.org/wiki/Pali#Geographic\\_origin](https://en.wikipedia.org/wiki/Pali#Geographic_origin)

<sup>47</sup> Magadhi Language: <https://newbuddhist.com/discussion/16368/the-languages-of-buddhism>

The Magadhi language, known as Magadhi Prakrit, is considered to be the root of the Pali language. Scholars consider it likely that the Buddha taught in several closely related dialects of Middle Indo-Aryan, including Pali, which had a high degree of mutual intelligibility. Scholars agree that the characteristics of the Pali language are a natural language, easily understood by the people living during the time of the Buddha. Also, Pali is a highly inflected language, meaning that almost every word contains, besides the root conveying the basic meaning, one or more affixes (usually suffixes), which modify the meaning in some way. This convention allows the Pali language to be extremely precise with regard to meaning and subject matter description.

### *6.3 Social, Political & Economic Time of the Buddha*

According to archaeological and historical data, Gotama Buddha was born in Magadha India during the Haryanka dynasty<sup>48</sup>, the first king of which was known as Bimbisara (544-492 BCE)<sup>49</sup>. Prior to the Buddha's birth, the kingdom of Magadha had lost its original importance and influence.

In the Mahabharata texts of the Hindus, Magadha was said to be the mightiest kingdom in India, stronger even than the kingdom of the Kurus<sup>50</sup>. Magadha controlled the entire eastern part of the country through alliances with smaller vassal states. Magadha was constantly at war with its western neighbors, the Yadavas of Mathura<sup>51</sup>, who ultimately migrated far west to the sea coast near the Rann of Kutchh<sup>52</sup> (modern Gujarat) because they could no longer afford the resources needed to protect their kingdom from the regular onslaughts of the earlier Magadha king, Jarasandha<sup>53</sup>, who lived many centuries before Bimbisara.

More like Medieval feudal states, these politically organized territories, were sophisticated democratic republics. India, as we know it today, did not exist. The continent was divided into sixteen different city-states containing hundreds of communities. These were advanced civilizations, complete with police systems, economic trade, social hierarchy and of course religion. Descriptions of some of these communities mention street lighting, sewer systems, and homes with as many as 30 rooms on multiple levels. The foremost important religious influence of the Buddha's time was that of the Brahmins, first formulated by the Indo-Aryan peoples who migrated to the Indian sub-continent.<sup>54</sup>

Northern India was divided into republics, and the kingdoms that had begun centuries before, continued into the time of the Buddha. The Vajjika Republic<sup>55</sup> was a major assembly of democratic institutions, whereby the kingdoms of Kosala and Magadha were autocratic. All of these government systems functioned within the structure of Brahmanism, which described the duties of a ruler instead of outlining a ruler's power or form of government. Buddha was born in Shakya<sup>56</sup> (therefore a member of the Shakya clan), a former republic, which was incorporated into the Kingdom of Kosala. The Buddha taught in both Kosala and Magadha, as well as in the Vrije Republic.

During the time that the Buddha lived, there was a major rise in the merchant class, which led to the accumulation of huge fortunes, which rather than being measured in cattle, was now measured in the money of the kingdom. As in other major forms of government, such as the Roman Republic, the merchants became wealthier than the rulers. However, the rulers fought back by taking more autocratic measures to control commerce.

<sup>48</sup> Haryanka dynasty: [https://en.wikipedia.org/wiki/Haryanka\\_dynasty](https://en.wikipedia.org/wiki/Haryanka_dynasty)

<sup>49</sup> Bimbisara: <https://en.wikipedia.org/wiki/Bimbisara>

<sup>50</sup> Kuru Kingdom: [https://en.wikipedia.org/wiki/Kuru\\_Kingdom](https://en.wikipedia.org/wiki/Kuru_Kingdom)

<sup>51</sup> Yadavas of Mathura: <https://en.wikipedia.org/wiki/Yadava>

<sup>52</sup> Rann of Kutchh: [https://en.wikipedia.org/wiki/Rann\\_of\\_Kutch](https://en.wikipedia.org/wiki/Rann_of_Kutch)

<sup>53</sup> Jarasandha: <https://en.wikipedia.org/wiki/Jarasandha>

<sup>54</sup> Pre-history of India before the Buddha: <https://londonbuddhistvihara.org/teachings/pre-buddhist-indian-history/>

<sup>55</sup> Vajjika Republic: [https://en.wikipedia.org/wiki/Vajji\\_\(tribe\)](https://en.wikipedia.org/wiki/Vajji_(tribe))

<sup>56</sup> Shakya Republic: <https://en.wikipedia.org/wiki/Shakya>

Within most of the kingdoms the main preoccupation was gaining economic and political power. With such an emphasis on money came violent political forces, until the kingdoms regained strength becoming stronger than the republics, economically, politically, and militarily.

Results of this political, economic and social shift, freedom for the average person was becoming ever more restricted, thus creating much economic and social suffering. Because of these conditions, many spiritual leaders attempted to offer mystical solutions. There were two main spiritual groups offering paths to liberation in response to these difficulties.

Brahmanas represented the orthodox solutions, remaining with the old Brahminic rituals of purification to the gods as outlined in the Upanishads. This was the philosophical base, but within the context of first leading a life of duty within society, they would become celibate renunciates after retiring. Brahmana holy men were exclusively from the Brahmin caste, pursuing a path to liberation as solitary ascetics living in the forests.

Another major philosophical religion was that of the Shramanas, who were wandering mendicant spiritual seekers not of the Brahmin caste. Rather than being solitary ascetics, the Shramana path to liberation was leaving society altogether, living communally in the forests, and shedding caste differences. Organization of their communities were based on the same model used by the republics. All decision making was done in an assembly of the community. Shramanas rejected a supreme god, such as Brahma, or any other form of a creator. While the Shramana communities did not adhere to the caste system of the Brahmins, and the laypersons who supported them, remained firmly entrenched in the structure of the caste system.

It is clear from the history of the kingdoms and republics of India, that this was a highly advance society in many respects. This is the world that the Buddha was born into, and it was the world in which the Buddha taught.

Just as today, the Buddha faced opposition from many divisions of his society. Brahmin rules were observed by most of the governments, and their rulers. Therefore, the Buddha's message was in direct opposition to those Brahmin rules, and the Brahmins did not want to lose the influence they had with ruling governments.

All of the foregoing contains a lot of encapsulated and compressed information. Hopefully, I have given you a fairly solid foundation on which to move ahead and examine how all of the topics come together into one Buddha Dhamma (teachings of the Buddha).

In the Samsapa Sutta<sup>57</sup> (*Samyutta Nikaya SN 56:31*), the Buddha stated that the breadth of his knowledge was far less than what he taught:

*"Buddha was staying near Kosambī in the Siṃsapā forest. Then, picking up a few Siṃsapā leaves with his hand, he asked the monks, "What do you think monks? Which are more numerous, the few Siṃsapā leaves in my hand or those overhead in the Siṃsapā forest? In the same way monks, those things that I have known with direct knowledge but have not taught are far more numerous (than what I have taught). And why haven't I taught them? Because they are not connected with the goal, do not relate to the rudiments of the pure life (visuddha<sup>58</sup>), and do not lead to disenchantment, to dispassion, to cessation, to stilling, to direct knowledge, to self-awakening, to unbinding. That is why I haven't taught them."*

#### 6.4 Where Do We Go from Here?

I am attempting to connect modern scientific knowledge with concepts taught by the Buddha. According to the sutta aforementioned, Buddha knew very well that he had to limit not only what he taught, but also carefully choose the words he used to teach what he did. All that encompasses human life is an immensely complex subject. It would take volumes of books to cover all of the aspects of the Buddha's 84,000 teachings and how they correlate and explain various modern concepts. Here, I am attempting to provide as simple and brief a way of understanding both.

<sup>57</sup> Samsapa Sutta: A Handful of Leaves: [https://www.dhammadatalks.org/suttas/SN/SN56\\_31.html](https://www.dhammadatalks.org/suttas/SN/SN56_31.html)

<sup>58</sup> Visuddha: [https://dsal.uchicago.edu/cgi-bin/app/pali\\_query.py?qs=visuddha&searchhws=yes&matchtype=exact](https://dsal.uchicago.edu/cgi-bin/app/pali_query.py?qs=visuddha&searchhws=yes&matchtype=exact)

In **Part 1**, we began by examining the historical context of when the Buddha lived. In **Part 2** we ventured into the nature of reality, more specifically, into the science of nature. **Part 3** examined the record of ignorance that has followed humankind for millennia, which has affected important knowledge up to this day.

**Part 3**, includes an overview of the long road of scientific discoveries and the consequences that these discoveries have for humankind. Then in **Part 4**, we begin tying together the history, science, and philosophy.

In **Part 5**, we begin the sojourn into the investigation of the subject of consciousness in consideration of the possible applications to physics.

**Part 6** examines an overview of the time in which the Buddha lived, considering the political, social, religious and economic climates. Also, in Part 6, we examine the origin of the Pali language and its connection to the ancient Magadhi language that the Buddha used.

Next, in **Part 7**, we begin to consider the possibilities that modern science coincides with the Buddha Dhamma; comparing what the Buddha taught with current Quantum theory regarding the physical and non-physical nature of reality.

## PART 7: Teleology & the Science of the Buddha Dhamma-A Functional System

In this section we explore several elemental and causational aspects of the Buddha Dhamma. That there is a teleological causative aspect of the systems of kamma and rebirth will become evident. Firstly, a brief description of teleology is in order. Teleology is basically a reason or an explanation for something, which serves as a function of its end, its purpose, or its goal, as opposed to something which serves as a function of its cause. This concept is employed in many areas of physics, philosophy, and biology.

Although the physical sciences, in particular Quantum Mechanics, avoids or outright rejects the notion of teleology to explain functional causation, there does appear to be a shift in this avoidance with regard to consciousness research. With this position, I submit there is an obvious teleology that applies to kamma and rebirth, serving both function and cause. Quantum Physics is about uncovering knowledge of how the world works. Buddha Dhamma is about finding the “correct” perspective.

The feature-rich kammic system, as described by the Buddha, reveals a very specific *modus operandi*<sup>59</sup>, which defines the model. It is this modus operandi which is discussed in this section. In the sub-sections to follow the main elements belonging to the kammic system are discussed. Not all of the elements connected to the kammic system are included however. I have selected the most pertinent and important features. Not that other features of kamma are not pertinent, but examining all of the ‘dependent’ parts of the kammic system could fill an entire, rather large volume. And, although the definition of teleology separates a functional end goal, as well as separating something that serves as a function of a cause, in general both cannot be applied simultaneously. However, a simultaneous teleological explanation of the kammic system, with regard to an either-or application, may apply, depending on which aspect of kamma is examined. This will be discussed further on in this essay. Secondly, a few clarifications regarding the meaning of certain Pali words and concepts of the Buddha Dhamma require explanations also.

### 7.1 Difference Between Dhamma and Buddha Dhamma

To move on, an examination of the difference between the meaning of dhamma (*Snskt*-dharma) and Buddha Dhamma. Buddha Dhamma is a conceptual framework that maps the causality of suffering and its influence on the human condition, but also provides a framework for understanding *why* we suffer.

<sup>59</sup> **Kammic Modus Operandi:** [*Modus operandi: gnrl*] A method of operating or functioning.” [For the purpose of describing the operation of the kammic system] ‘A distinct pattern or method of operation supporting a system composed of dependent elements on a micro-level indicating a hierarchy exposed at the macro-level, having consequences either in the present or at some time in the future.’”



Dr. Lal Pinnaduwa<sup>60</sup>, a Pali scholar and physicist has provided the best explanation.

*"The PRIMARY meaning of dhamma is "to bear." Everything in this world has arisen due to causes. Those causes are dhamma (usually it is written in the plural, dhammā). In that sense, dhammā are "kammic energies" that are in kamma bhava. As we know, such energies (kamma bhava) arise via Paṭicca Samuppāda (Dependent Arising).*

*There are "good dhammā" that can bring "good vipāka." Then there are "bad dhammā" that bring "bad vipāka"<sup>61</sup>, and thus they are called "adhammā." Thus, adhammā are just the bad version of dhamma. Note that adhammā arise due to lōbha, dōsa, and mōha, while dhammā arise due to alōbha, adōsa, and amōha.*

*Buddha's unique teaching was "sabbe dhammā anattā." That means ALL dhammā, including adhammā are of "unfruitful nature." As we know, adhammā leads to rebirths in the bad realms and dhammā leads to rebirths in the good realms. That means all types of dhammā bind one to the rebirth process. That is why "sabbe dhammā anattā," i.e., "all dhammā are unfruitful." That includes "good dhammā" due to alōbha, adōsa, amōha.*

*Now, Buddha Dhamma (where the dhamma is without the long "a") is a teaching or a procedure. Buddha Dhamma explains how one can stop creating both types of dhammā that keeps one bound to the rebirth process. There [in this meaning] the Buddha comes from "bhava" + "uddha" where "uddha" means to 'root out.' Thus, "Buddha Dhamma" teaches one how to stop those bhava/kammic energies/dhammā from arising. It is best to disregard other definitions. For example, Dipobhasadhamma quoted:*

*"Having lent ear, one hears the Dhamma. Having heard the Dhamma, one remembers it. Remembering, one penetrates the meaning of the teachings. Penetrating the meaning, one comes to an agreement through pondering the teachings" [Majjhima Nikaya 70]. "Dhamma" there refers to Buddha Dhamma, so it is consistent."*<sup>62</sup>

The word dhamma alone does not mean the teachings of the Buddha. As we read in Dr. Pinnaduwa's explanation, there are different types of dhamma, which refer to different things depending on the context in which it is used. For the purposes of this paper I will refer only to Buddha Dhamma.

## ***7.2 Buddha Dhamma: A Religion or Not, and the Possible Connections to Modern Science***

If, and when, one is able to scrutinize the teachings of the Buddha without religious or even scientific bias, then it will be correct to consider that the Buddha was likely the greatest scientist that ever lived. He investigated the human condition and identified the causes behind the problems plaguing human existence, such as suffering and death. How was he able to do this? Like any modern scientist, he would have first had to clear his mind in order to focus on examining the problem at hand. Buddha's method of focus involved a re-training and a disciplining of his thinking by cleansing himself of preconceived biases, unimportant, useless and non-relevant information, as well as training his thought processes through single-pointed meditation.

When one is able to comprehend the basic foundational elements of the Buddha Dhamma, one will undoubtedly conclude that Buddha's teachings are the furthest thing from being religious in nature. Buddha never represented himself to be a god, a prophet or the messenger of a higher being. He was simply a human being who was able to purify his thinking to the point of perfection, enabling him to see the whole of existence, both human and the non-physical. To some degree, is this not what modern-day scientists are doing with thought and physical experiments? I propose that the reason the Buddha's teachings are not considered persuasive for modern scientific consideration is owing to limitations imposed upon it due to ignorance, and the propensity to include his teachings in the same category as mythic-based religions.

<sup>60</sup> Dr. Lal Pinnaduwa: "Senior Scientist at the Oak Ridge National Laboratory, and a Research Professor at the University of Tennessee, Knoxville. Elected a Fellow of the American Physical Society in 2004. Retired in 2009 at age 55, Dr. Pinnaduwa has been on a quest to uncover the pure Dhamma of the Buddha." <https://puredhamma.net/about-me/>

<sup>61</sup> Vipaka: [masculine] "Result; fruition; consequence of one's actions." <https://suttacentral.net/search?query=vip%C4%81ka>

<sup>62</sup> Dhamma: What Does it Mean? <https://puredhamma.net/forums/topic/dhamma-what-does-it-mean/#post-37841>

With a clear understanding of the Buddha Dhamma, one will find that the Buddha must have been compelled by reason to include teachings of the existence of various realms. Lest it be forgotten, I will remind those contemplating the Buddha Dhamma to remember that the Buddha's teachings about human existence, birth, death, rebirth, and kamma, predates all of the Abrahamic religions by millennia.

Why was it that the myth-laden Abrahamic religions were successful, continuing into modern times since their founding? The historical records of the Abrahamic religions reveal a tight association with ruling political forces that employed the use of violence as a means of propagation and allegiance. While violence is not always the means by which these myth-based religions propagate today, political influence, commercial competition, money and fear are. This is the predominant reason why there are some 45,000 different denominations of Christianity in the world today. Likewise, Islam has five major branches. Although all Abrahamic religions have the same or similar prophets, the same God, and similar teachings transmitted by this God; these have never been able to agree on either the doctrine or the teachings of their prophets.

Conversely, similar to the modern-day Scientific Method, the Buddha logically approached the problems connected with human existence; asking specific questions; weighing answers methodically, resulting in correct answers.

Buddha's methods did not usher from other-worldly beings, nor did they stem from religious doctrines calling for blind faith. Rather, the foundation of his teachings were the results of years of direct experience and thought experiments, a process structured within the specific problem domain of human existence. Which of the Abrahamic religions conforms to resolving the specific problems surrounding the human condition by utilizing actually existing data and direct experience rather than myth and blind faith?

Experiments like Erwin Schrödinger's famous Cat, Einstein's Special Theory of Relativity, Galileo's Heliocentrism, Newton's gravity, and countless others<sup>63</sup>, all began as thought experiments<sup>64</sup>, which eventually were proven true. A thought experiment basically begins with "what if." The starting point is a known truth, such as death, you begin asking questions based on that truth. We all know that death exists, but do we know what its purpose is? Next: Formulate a theory and posit that your theory is true. Since the Universe and human beings are made of the same stuff, and both are subject to renewal and destruction, this supports the physical process of human rebirth.

Most of the famous thought experiments posited certain questions that can be examined with physical experimentation. Developing the right questions that assume a probability of correctness, can point scientists where to look, but also HOW to look. This is the way the Buddha was able to discover the truth about the nature of reality and the solutions for resolving the problems of human existence. Buddha used this mental device with the intention of helping him to explore the merits of his teachings. Thus, because of his thought experiments we have the Buddha Dhamma, which, if compared to modern day methods, was scientific, and certainly not religious philosophy.

### *7.3 Comparing Modern Consciousness Theory to Buddha's teaching of Viññāṇa*

*"We have a closed circle of consistency here: the laws of physics produce complex systems, and these complex systems lead to consciousness, which then produces mathematics, which can then encode in a succinct and inspiring way the very underlying laws of physics that gave rise to it." -Roger Penrose*

In Part 5, we examined consciousness from various scientific aspects. Here, we examine the similarities between those scientific perspectives and the Buddha's explanation of consciousness, loosely defined by the Pali word viññāṇa<sup>65</sup>, (pronounced vhin-yah-nah) which is defined by most modern translators as "consciousness."

<sup>63</sup> Scientific Thought Experiments: [https://en.wikipedia.org/wiki/Category:Thought\\_experiments\\_in\\_physics](https://en.wikipedia.org/wiki/Category:Thought_experiments_in_physics)

<sup>64</sup> Thought Experiment: [https://en.wikipedia.org/wiki/Thought\\_experiment](https://en.wikipedia.org/wiki/Thought_experiment)

<sup>65</sup> Viññāṇa: <https://puredhamma.net/key-dhamma-concepts/five-aggregates-pancakkhandha/vinnana-defiled-consciousness/>

Current scientific research looks for some “thing,” that might identify consciousness. In some instances, some scientists are looking for a conceptual “thing” that will fit within the paradigm of material physics, similar in some ways to the EPR Paradox thought experiment of Einstein, Podolsky, and Rosen<sup>66</sup>. Science seeks to explain how consciousness exists, and although it might sound like an audacious claim, the Buddha already had the answers.

Consciousness is produced by the combined existence of certain elements. If you recall, in Part 5, I explained that in the realm of the physical world, everything must have a direct identifiable cause as either a *singular* cause or a *combination of things that act together*. Science can identify causes and effects, but is mostly blind when it comes to identifying conditions that lead to a cause, which is the difficulty with the physical approach to consciousness research.

In Pali the word *viññāṇa* means “consciousness,” but this is overly simplistic as the meaning changes depending on the context. In the strictest, most encompassing definition, *viññāṇa* is a component *principle* of life. Its reference is always used to describe a regenerative force. Buddha describes it as a force in the same manner one might describe gravity or energy.

To describe *viññāṇa* or consciousness merely as “mind,” is not entirely incorrect. *Viññāṇa* is generally translated as consciousness or awareness. However, *viññāṇa* has a much deeper meaning and there are many different types of consciousness described by the Buddha in the Pali texts. *Viññāṇa* is very complex and is the key to Nibbāna (cooling down of the brain). There are actually six types of *viññāṇa*, each corresponding to the six sense inputs of vision, hearing, taste, smell, touch, and mental processes or mind. *Viññāṇa* encompasses and includes all mental categories: *sañña*, *védanā*, and *saṅkhāra*. *Viññāṇa* is the overall effect of awareness, encompassing our perceptions (*sañña*), feelings (*védanā*), and our likes and dislikes (*saṅkhāra*).

Specifically, and for the purposes of this discussion, the two most important types of *viññāṇa* are; *vipāka viññāṇa*<sup>67</sup>, which is awareness or consciousness of the senses, and *kamma viññāṇa*. *Kamma viññāṇa* is that awareness that arises in the mind because of ignorance, known as *avijjā* in Pali. *Kamma viññāṇa* does not arise from any of the sensory inputs, but are created due to one’s impure or contaminated thoughts. Contaminated or impure thoughts are any thought that stems from ignorance, incorrect viewpoints, opinions or beliefs. What are incorrect viewpoints, opinions, and beliefs? Any type of incorrect views, opinions and beliefs are those that do not lead one to actions that are in some way beneficial for oneself or others. For example, holding to a belief or opinion of something that is false for the sake of pride or to protect one’s need to be correct, is an inappropriate view, and is ignorance. These are impure thoughts contaminated by ignorance, desire, craving and grasping.

The five types of *viññāṇa* associated with the five physical senses are always *vipāka viññāṇa*. Simply put, *vipāka viññāṇa* is literally one’s experiences at any given moment. Therefore, it could be said that *viññāṇa* represents the overall effect of our awareness encompassing our perceptions (*sañña*), feelings (*védanā*), and our preferences or likes and dislikes (*saṅkhāra*).

Neither consciousness nor *viññāṇa* can be considered a condition, but rather consciousness and *viññāṇa* are the products of a combination of conditions that cause one to experience mind (thinking). Buddha taught that a set of elementary units of matter facilitates consciousness. The key word here is “facilitate.” Which implies that consciousness is already there. Consciousness, as is presently considered by science, is only similar to *viññāṇa*. Consciousness is the link between matter and mind. By itself, consciousness is an innocuous word that cannot encompass the entire meaning of *viññāṇa*. Whereas consciousness only implies a knowing or a state of being aware, *viññāṇa* encompasses a whole range of attached elements and functions.

<sup>66</sup> EPR Paradox Thought Experiment: [https://en.wikipedia.org/wiki/EPR\\_paradox](https://en.wikipedia.org/wiki/EPR_paradox)

<sup>67</sup> **Vipāka Viññāṇa:** “When we see something, a cakkhu (sight), *viññāṇa* arises. When we hear something, *sōta viññāṇa* arises. Six types of *viññāṇa* arise via our six senses: eyes, ears, nose, tongue, body, and the mind, called cakkhu, *sōta*, *ghāna*, *jivhā*, *kāya*, and *manō viññāṇa*. All are *vipāka viññāṇa*.

According to the Buddha's discoveries, consciousness is facilitated by three elements, which must be in place in order for a person to BE consciously aware. From the standpoint of science, the assumption is that consciousness either exists as a stand-alone "thing," a force, or it is facilitated by some physiological Quantum event within the brain itself. Either way, consciousness must be a type of energy. If consciousness is already there, then perhaps science is not that far off from discovering that the brain is a receiver, much like a radio antenna. Once the three elements are in place, the brain is able to *facilitate* consciousness. Perhaps this is the Quantum event that Hammeroff and Penrose seek in their research of microtubules. However, the Buddha taught that consciousness is facilitated, and becomes a state of awareness that occurs when three elements of *sañña*, *védanā*, and *sañkhāra*, are present, and these three cannot be present without *hadaya vathu* (mind). From the Buddha Dhamma this indicates that there is a synchronicity between these three elements. Therefore, *viññāṇa*, it could be said, is an apperception or energizing principle, and is regenerative in the sense that it is one of the forming factors of rebirth.

In plain English, in order for the brain to connect with consciousness, there must be *sañña* or perception, then *védanā*, which is feeling, and finally, *sañkhāra* or emotions. These three elements combined, cause mind, and sense awareness, which is the foundation of the process of thought (*citta*). It could be said that the ability to experience consciousness is endowed at a certain point in a human life, given specific conditions.

Human beings are completely sensed-based. It is the facilitation of consciousness that is the vehicle for experiencing the senses. When in a coma or under anesthesia, the senses are dormant; no sensory input is being recorded by the brain. There is no *sañña* or perception, *védanā* or feelings, and *sañkhāra* or emotions, which is also the case during sleep. In order for consciousness to be experienced, there must be *sañña* or perception, then *védanā*, which is feeling, and finally, *sañkhāra* or emotions. Without these there is no awareness of existence, nor does the path for facilitating consciousness exist.

When we revive from a coma, anesthesia or sleep, *sañña*, *védanā*, and *sañkhāra* work in union to facilitate consciousness. The phrase: "Regain consciousness," is a curious one. If we are subject to a coma, it is said that the person has "lost consciousness," but is it actually lost? We temporarily disconnect from consciousness, like turning off the TV or radio. Another curious fact is that when we "regain consciousness" we regain "our own" consciousness. Why don't we regain the consciousness of a blank slate? When we awaken from an unconscious state, we awaken to ourselves, our lives; to the same person who had previously been disconnected from consciousness. How is this possible? This is possible because, as the Buddha made clear, regardless of whether the person dies or loses their connection with consciousness temporarily, the person remains connected to their kamma via the life-energy or kammic energy of something that is called the *gandhabba*. This will be explained later on in this paper.

Like a cell-phone frequency, the signal is always there, which we take for granted, just like consciousness. Physical scientists are beginning to understand that the brain is not responsible for creating consciousness. So, what is it that keeps us connected to "our own consciousness" during the time that we are disconnected? While in a state of being unconscious, our brains are disconnected from our senses, our emotions, feelings, memories and perceptions. Somehow, when we awaken nothing is lost. We reconnect with everything that we were before the unconscious state.

During an unconscious state, our brains, like the memory of a computer, keeps the specific information about our life in-tact. But, while we are disconnected from consciousness we are not at all aware of the information about our life. If we were to never re-connect with consciousness, we would not be aware of the specific information about our lives. Neither would we be aware that we had become disconnected from what we have come to believe to be "our" life. Consciousness is not the sole determining factor for being aware of our specific life. Buddha taught that there must be a brain, *sañña*, *védanā*, and *sañkhāra* in order to facilitate consciousness. The synchronous interplay of all of these things are the elements that cause us to develop the idea of "my" life.



At the instant, when we are reconnected to consciousness, we experience sense input; we experience awareness. Two things are evident here. One, the brain does not produce consciousness. Rather the brain connects TO consciousness. Secondly, does this not indicate that consciousness is there, waiting for a signal from the brain, like activating a TV or computer with an “on” switch? If the “on” switch is never pressed the TV will not come on. A TV cannot produce a signal in the same manner as the brain cannot create a signal. Both are merely receivers. We simply have not found the “on” switch in the brain or the mechanism that receives the consciousness signal.

To date, science hasn’t determined the properties of consciousness, let alone discovering its source. Yet the Buddha did. Recent experiments involving the brain have been conducted using three procedures; *correlation*, *stimulation* and *ablation*. **Correlation** is a connection between external sense stimuli and brain activity determining consistency of brain response to specific external sense stimuli, such as sight, sound, smell, and touch. Next, using **stimulation**, certain parts of the brain are directly stimulated producing similar effects of sense stimuli. Lastly, **ablation** is observed in persons who have suffered stroke or brain injury, where certain functions of the brain have become damaged. This also produces results that effect certain areas of brain function.

How do these procedures determine whether the brain is or is not responsible for producing consciousness? The triangulation of correlation, stimulation and ablation responses, appear to give the idea that the brain produces consciousness. However, using the same three procedures with a TV set, discloses that the TV is not responsible for producing a signal. A TV does not “have” consciousness, any more than a brain “has” consciousness. Neither does a living brain produce consciousness. A TV is merely a receiver for a signal. When the conditions are conducive, the TV will receive a signal and produce a visual result.

When the three elemental conditions (*sañña*, *védanā*, and *saṅkhāra*) are present, the brain receives consciousness. Like the TV, if any one of the three elements (*sañña*, *védanā*, and *saṅkhāra*) are not present, conditions for receiving consciousness by the brain are not met, thus the state of being functional is off; there is unconsciousness or non-consciousness, as it were<sup>68</sup>.

While science may not have a good answer for this, the Buddha clearly outlined what it is that keeps our life, our experiences and our characteristics intact during our lifetime. There is a thread, of sorts; a physical connection that not only keeps us tethered to the idea of what we think and believe is “me,” when we regain consciousness, but this thread also plays an important role in birth, death and kamma.

We might be tempted to use, the rather cheeky cliché, “the truth is out there,” but this is not the case. The truth about consciousness lies within, and is accessible by any human being. However, humankind will never be able to discover or accept the truth about the nature of consciousness whilst tethered to superstitious ideas; obdurately clinging to mythological concepts that a celestial being is responsible for creating consciousness. Whilst it is evident that humankind is not prevented from discovering the truth about the nature of reality, we will however remain our own worst enemies for not pursuing it. As long as large portions of humankind remain tethered to mythological ideas about the Universe gleaned from ancient texts propounding magical ideas, we will remain in the dark.

#### 7.4 Gandhabba: The Connecting Thread

Examining the Buddha’s teachings for the purpose of determining similarities to modern scientific thought requires three things: First, the less one is tethered to wrong views, concepts and beliefs derived from religious or mythical explanations, the less one’s thinking is influenced, but is opened to new ideas broadening the scope of consideration. Secondly, there must be a willingness to go beyond mere mundane understandings of the Buddha’s teachings.

<sup>68</sup> Brain works like a radio receiver: <https://www.sciencedaily.com/releases/2014/01/140122133713.htm>

Thirdly, if one can comprehend, not merely memorize the key fundamental concepts of the Buddha Dhamma, then it is easier to avoid absorbing the “*viparīta sañña*” or “incorrect impressions” of the deeper teachings.

Although the word *gandhabba* was translated in the late 1800s to mean “musician,” this translation did not consider the broader contextual use of this word in relation to the Buddha’s teachings. With respect to the meaning of the word *gandhabba* in the Buddha’s time: It is likely that his reason for re-appropriating this word was because of its metaphorical nuances. Consider what a musician does. They take a series of musical notes and arrange them into a composition that follows certain rules. Once the notes are compiled and played, they reveal a synthesis having specific meaning. For example, consider the 1812 Overture, written by Tchaikovsky. The composer, using specific musical rules, compiled a symphony of instruments reflecting the composer’s concepts of the battle of 1812, which commemorated the Russian victory over Napoleon’s invasion.

### 7.5 Re-appropriation of Words by the Buddha

One of the ways in which the Buddha taught was through the use of metaphors and analogies employing subjects of common every-day things. One of the metaphors the Buddha used is with his re-appropriation of the word *dukkha*, to which modern translators assigned the English word suffering.

However, of late, modern-day translators are less apt to use the word suffering to describe the Buddha’s meaning of *dukkha*, and are now apt to use the word stress or dissatisfaction. However, the original meaning of the word *dukkha* described an “axle hole.”<sup>69</sup> An axle was fitted into the hole of a wheel. If the hole in the wheel was not perfectly round, the wheels of the cart would wobble, placing stress on the wheel, which would eventually crack and break. Over time, an axle hole would wear out causing the wheel to not work properly. This was an inevitable fact about wooden wheels and axles of the time. An axle hole could never be made to last forever or not wear out. In the ancient Sanskrit language of the Aryans, the word *dukkha* originally was the word for “hole,” particularly an axle hole of Aryan vehicles. Thus *sukha* ... meant, originally, “having a good axle hole,” while *dukkha* meant “having a poor axle hole,” leading to discomfort (See footnote 64). As with the word *dukkha*, the Buddha re-appropriated the word *gandhabba*, which could be compared to the conductor of a complex musical score.

Buddha’s reference to a *gandhabba* was not concerned with musical notes, but rules or instructions finely orchestrated to transmit life to a being. The complexity of a *gandhabba* might also be likened to the complexity of a genetic code, containing specific instructions linking a beings *kamma* and *gati* (psychological characteristics). Human beings and animals have physical bodies, which conform to specific elemental influences. The *gandhabba* is the mental body (*manomaya kaya*) of a human being.

<sup>69</sup> **Dukkha: Etymology:** “In ordinary usage, the Pali word *dukkha* (Sanskrit *duḥkha*) means ‘suffering’, ‘pain’, ‘sorrow’ or ‘misery’, as opposed to the word *sukha* meaning ‘happiness’, ‘comfort’ or ‘ease’. Contemporary scholar Winthrop Sargeant explains the etymological roots of these terms as follows: “The ancient Aryans who brought the Sanskrit language to India were a nomadic, horse- and cattle-breeding people who travelled in horse- or ox-drawn vehicles. *Su* and *du* are prefixes indicating good or bad. The word *kha*, in later Sanskrit meaning “sky,” “ether,” or “space,” was originally the word for “hole,” particularly an axle hole of one of the Aryan’s vehicles. Thus *sukha* ... meant, originally, “having a good axle hole,” while *dukkha* meant “having a poor axle hole,” leading to discomfort.”

Joseph Goldstein explains the etymology as follows: “The word [*dukkha*] is made up of the prefix *du* and the root *kha*. *Du* means “bad” or “difficult.” *Kha* means “empty.” “Empty,” here, refers to several things—some specific, others more general. One of the specific meanings refers to the empty axle hole of a wheel. If the axle fits badly into the center hole, we get a very bumpy ride. This is a good analogy for our ride through *samsāra*. On my first trip to Burma, a group of friends and I went up-country to visit Mahāsi Sayadaw’s home temple. We made part of the journey in an oxcart, and it was undoubtedly similar to modes of transportation in the Buddha’s time. This extremely bumpy journey was a very visceral example of *dukkha*, the first noble truth. In more general philosophical terms, “empty” means devoid of permanence and devoid of a self that can control or command phenomena. Here we begin to get a sense of other, more inclusive meanings of the term *dukkha*. Words like unsatisfying, unreliable, un-easeful, and stressful all convey universal aspects of our experience.”

<https://encyclopediaofbuddhism.org/wiki/Dukkha>

Think of *gandhabba* as a type of seed that contains the blueprint of a person's life-stream. But, the *gandhabba* contains many more subtle properties like an operator or a conductor of an orchestra. The *gandhabba* is an invisible energy body, kind of like an atom. We cannot see a single atom with our naked eye, but an atom contains much information and huge amounts of energy, similar to the infinitely smaller *gandhabba*. Unlike the atom, the *gandhabba* has very subtle sense properties, which is the reason when a person experiences a very traumatic event, such as heart surgery or heart attack, people have reported having left their bodies (near death experiences) recounting procedures being done to them. In actuality, the person does not leave their bodies, it is the *gandhabba* that leaves the body temporarily, and because it possesses subtle sense properties the *gandhabba* is able to sense what is happening and in concert with consciousness, and a brain, the event is recalled through the mind or thoughts.

Consider the immense depth of knowledge that the Buddha obtained through his awakening. Consider also the complex and in-depth explanations of the descriptions and sources of the human condition and the physical world that he taught. Evidence exists that his teachings on these subjects were not mere philosophy nor fabrications, but were derivative of his direct experience. If his teachings were the consequence of mere philosophy, then it could be said of the Buddha that he was the greatest philosopher that ever lived. However, the fact that he provided such specific descriptions relating to all aspects of human life with astonishing detail, is testimony in itself that the things he taught weren't his inventions, because much of what the Buddha taught have proven to be true.

Unlike mere philosophical concepts replete with unqualified and unsubstantiated referents, such as the religious concept of soul, the Buddha's teachings are a holistic view of the conditions of human life. Unique to his teachings is a thread of substantiation, that is interwoven throughout all of them. This substantiation is however, only proven by the direct experience of one who deliberately gains knowledge of his teachings and changes their actions and mental perception.

### 7.6 *Gandhabba and its Relation to the Cycle of Rebirth*

Life and the Universe have been in existence since beginningless time, according to the Buddha. This concept, like infinity, is difficult for human beings to comprehend. However, the Buddha did teach that there are different cycles of life that are dependent on many things.

The word "rebirth" alone implies that there is a beginning of some sort, and if there is a beginning then there must be an end. However, having a beginning and an end does not mean a complete going out of existence and miraculously reappearing again. With regard to the human being, this completely flies-in-the face of the physical laws of the Universe, namely the Law of the Conservation of Energy. Here, the reference to a beginning and an end denotes specific points of continuation within a life-stream. A life-stream never ends, but converts from one stage to another: From a state of possessing a physical body to a mental body then back again to a physical body, either human or animal. This is much like a human embryo that begins as a single cell, and then begins to convert into a zygote, which in turn begins transforming into a body (*See Appendix: Conservation of Energy*).

*Gandhabba* plays a critical role in the cycle of rebirth. We are going to examine the role of the *gandhabba* at the moment of the conversion from the life to the death of a body. Then, we'll explore the moment when a *gandhabba* allocates to a new life. At the end of a human or animal life, there is a simultaneous beginning. This simultaneous beginning and end spoken by the Buddha is called the *cuti-paṭisandhi* moment.

**Cuti-Paṭisandhi Moment:** *Cuti* (coo-tee) is a passing away, a transition, referring to the transition from one life into another. *Paṭisandhi* is a concatenated Pali word derived from the roots word "*paṭi*" (pah-tee), which means "to bind" and "*sandhi*" (shand-hee), which means "to join." *Paṭisandhi* is like the transitional process of a water molecule into steam. It is the process that we are focused on, not the water or the steam. *Paṭisandhi* is about the process of joining a new life to the accumulated kamma and gati of the life that has just ended.

Being joined and bound are the mental characteristics (*gati*) of the old life, along with a person's past and present kamma. This joining being spoken of, does not mean a conservation or preservation of "specific" memories, nor does it refer to transmutation such as is believed of reincarnation †. *Gati* and kamma preserve only the essence of moral actions and decisions of the dead individual, whose essences are then re-connected with a new human life, thus the meaning of re-birth. **These topics are expanded upon and explained later in this paper.**

**[† Note: The concepts of rebirth and reincarnation are not the same. The Buddha's teaching of *cuti-paṭisandhi* does not refer to reincarnation, as this was not something the Buddha taught. The concept of reincarnation is a Brahmin/Hindu invention. The Buddha clearly rejected the concept of reincarnation.]**

A *cuti-paṭisandhi* "moment" is comprised of a few elements, which in order to happen, must be present. At the instance of death, there happens the final thought of the person who is dying. This is referred to as the *paṭisandhi citta*. *Citta* (chee-tha) means "thought." Thus, the implication here is that a transition takes place (*cuti*) involving thought. One's last thoughts influence the "way" or essence in which rebirth will take place. This last thought itself, is called by the Buddha, *citta vithi* (chee-tha vee-thee), where *vithi* means "the way," "the route," "direction of the thought." So, the *paṭisandhi citta* is the last thought moment before death, and *citta vithi* is the direction (positive or negative) of the person's last thought.

The direction (*vithi*) of this last thought depends on the living individual's *gati* or mental characteristics just before death. If a person's characteristic mental state is one that is habitually influenced by some form of hatred, greed or delusion, whichever one or all of these, directs the course (*vithi*) of the person's dying thought (*citta*). It is the root influence of hate, greed or delusion, or the absence of these, that distinguishes the last thought. This is the transitional thought that influences, to some extent, the quality of the next life, which ushers in the elements corresponding to like elements in one's kammic profile. If one's last thoughts are negative or influenced by greed, hate or delusion, the corresponding kamma takes precedence for the features of a person's rebirth. Therefore, last thoughts containing hatred, greed or delusion produce a rebirth that is predominated by these things.

At the moment of death, triggered by the last *citta vithi* (dying thought), the *gandhabba* disengages instantly from the dead body. The last thought (*citta vithi*) generates from the person's kammic energy from their dying life, which can be good or bad kammic energy, but more often than not, both. Although a person may be physically weak and does not appear to be thinking, the thought process of *cuti paṭisandhi* nevertheless continues. The thought process that influences the dying person's next life is marked by what the Buddha called a distinctive *nimitta*<sup>70</sup> (nim-ee-tah), which is an identifying property. The properties of the *nimitta* are influenced by a person's kammic energy at the time of death.

<sup>70</sup> *Nimitta*: <https://suttacentral.net/search?query=nimitta> masculine, neuter

1. a sign or mark by which something or someone is recognized or identified or known or defined; a distinguishing mark or appearance; a perceived (enduring) attribute, predicate (especially that of permanence); an attribution
2. the organ of generation (of either sex), the pudenda
3. an object or appearance or happening which is significant, which expresses more than itself; a sign, a significant appearance; an omen, a portent
4. an indication, a hint
5. what one notes or marks; an object of thought or meditation or concentration; an image
6. an internal/ appearance or total awareness; a mental impression (appearing as an early stage of *jhāna*, a sign of progress)
7. a ground, a cause, a reason



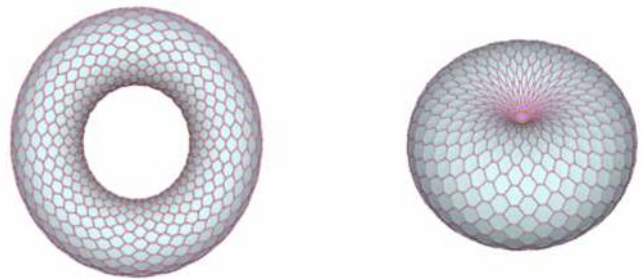
The consequence of one's kammic energy can, of course, be either good or bad, but it is almost always both. *Vipāka* means consequences<sup>71</sup> (of one's action), either as good and admirable (*kusala*) or bad and detrimental (*akusala*)<sup>72</sup>, therefore the consequences of one's kammic actions (kammic profile) is known as *kamma vipāka*. Within the last stream of thought (*citta vithi*), the mind focuses on a thought object (*arammana*), which is associated with the *kamma vipāka*, *akusala kamma* (bad kamma) or *kusala kamma* (good kamma); the strongest having more influence, and which becomes the determining factor; the determining thought (*votthapana*<sup>73</sup> *citta*). The thoughts focused upon is also determined by the persons *gati* (features of their mental character). A person's mental characteristics (*gati*) are in synch with the person's kammic profile.

The *gandhabba* attached to a person, is also associated to the person's *gati* (mental characteristics) and *kamma vipāka*, which remain intact while the *gandhabba* awaits the availability of a *gati*-matching available womb. A *gandhabba* awaiting a womb, can only attach to a womb of someone with like *gati* (mental characteristics). The *gati* itself has no influence on which womb it is placed in, this is the function of the *gandhabba*. The determining factor of what constitutes a "matching" womb is not determined solely by the *gandhabba*, but is determined by the dead person's *gati*, *kammic energy* and *kamma vipāka*. As is discussed below, in many respects, a *gandhabba* can be likened to a centered, single-pointed singularity holding specific properties and instructions.

### 7.7 Does Gandhabba Conform to the Fundamental Scientific Properties of Dynamic Flow Processes?

Perhaps. From the largest to the smallest, all forms of energy in the Universe conform to the properties of electromagnetism, radiation and gravity. All three of these things are fields of energy surrounding every living thing.

The regenerative process of interaction of these fields of energy is called by science, a **torus**. A torus is a geometrical representation of nature's process of generation and regeneration of creating and sustaining life. The specific regenerative life force, represented by the **torus**, characterizes the flow of life-force energy found in the human body, the Earth, the Sun, and our Galaxy. These fields are the foundational structural properties of atoms, cells, seeds, flowers, trees, animals, humans, hurricanes, planets, stars, suns, galaxies, in fact, the entire cosmos as a whole. Therefore, the **torus** represents a patterned form of energy that is self-sustaining. This scientific fact is at the root of the Buddha's teaching of beginningless time and rebirth.



This self-sustaining energy pattern is balanced, yet dynamic, the same as the *gandhabba*. This energy flow process is found in regenerative systems at all scales. Torus systems allow for a nesting of energy from the micro to the macro. Each individual entity (similar to a human *gandhabba*) has its unique identity while also being connected with other elements in a kind of autonomous, self-governing unity. This scientific explanation of energy, represented by the geometrical torus model, can certainly be applied to a *gandhabba*. I believe, from the Buddha's use of the word *gandhabba*, that in essence the *gandhabba* represents a kind of sympathetic vibratory resonance with an individual's *gati*, *kammic energy*, and *kamma vipāka*.

<sup>71</sup> **Vipaka:** "Consequence (of one's action)," either as good & meritorious (*kusala*) or bad & detrimental (*akusala*). Fruit of, fruition, product; always in pregnant meaning of "result, effect, consequence (of one's action)," either as good & meritorious (*kusala* or bad & detrimental (*akusala*). Hence "retribution (*kamma*"); reward or punishment." <https://suttacentral.net/search?query=vipaka>

<sup>72</sup> **Kusala vs. Akusala:** <https://www2.buddhistdoor.net/features/kusala-and-akusala>

<sup>73</sup> **Votthapana:** "Establishing, synthesis, determination, a momentary stage in the unit called perception, accomplishing the function of determination."

Physicist David Bohm stated:

*“Reciprocal exchange is a primary feature of toroidal systems, wherein the individual is informed and influenced by its surrounding environment, and the surrounding environment is informed and influenced by the individual, in a continuous balanced **rhythmic** interchange. A reciprocal relationship enables a qualitative relation between structure and background, in which each has the potential not only to “impact” the other, but to generate transformations in the nature of what each actually is. More broadly considered, the notion of reciprocal relation allows for nested, mutual influence even between macroscopic processes and those at the atomic level.”*

Bohm’s use of the word “rhythmic” fits perfectly well with the Buddha’s use of the word *gandhabba*. Does not the toroidal system explain the nature of *gandhabba*? Now, of course, Bohm is referring to material physical properties in general, but reference to the *gandhabba* by the Buddha does infer a physical property. But, are the properties of the *gandhabba* influenced by the individual in a continuous balanced rhythmic interchange? Or, is it the other way around? Actually, neither is correct. The *gandhabba* is an elemental part of the individual person serving as the regenerative energy of rebirth. As long as an individual remains ignorantly unaware of the endless cycle of death and rebirth (*samsara*), and *Tilakkana*<sup>74</sup>, rebirth remains in play.

*Gandhabba* can be said to be an elemental component within a flowing exchange of energy and information throughout the entire cycle of death and rebirth. This cycle is self-organizing, folding into itself in a seamless flow, where the individual elements of a person’s character and kammic profile come into an overall order, which is spontaneous, and happens without control from any external force. Therefore, this cycle is toroidal in nature. Similarly, the *gandhabba* could be compared to the nuclei of an atom, which contains 99.95% of an atom’s mass, and is extremely small. The bonds between protons and neutrons of the nucleus involve significantly greater energies. The *gandhabba* is the center of energy for regenerating the process of a new life in a human and animal embryo.

Note the similarity between a *gandhabba* and the nucleus of an atom, both in structure, energy and action.

### 7.8 GATI: The Role of Gati in the Rebirth Process

An initial examination of the Pali word *gati* is necessary to understand its connection to rebirth and how it relates to one’s *gandhabba*. *Gati* (gah-thee) is a fundamental part of the Buddha’s teachings about rebirth. With respect to rebirth, other than the *gandhabba*, understanding *gati* is a critical element if one is to acquire full comprehension of how, and why, rebirth works as it does.

To some extent, personality traits develop throughout one’s present life, thus defining one’s character. *Gati* represents the essence of mental character. Some aspects of our character are predetermined or influenced by our kammic profile, others are developed throughout life. One of the elements that define our character is our point of view and the things we believe. Our viewpoint influences our beliefs, but if our viewpoint is based on ignorance, and wrong views, we develop negative personality characteristics. It is *gati* that gives humankind its broad range of personality diversity. To some degree, people are drawn to all sorts of lifestyles that are rooted in one’s mental characteristics. Where do these character traits come from? Why are character traits a significant predictor of behavior and attitude?

Our perceptions and the choices that we make are predominantly determined by our *gati*, and Buddha placed great emphasis on *gati* (mental character). Why did he place such emphasis on this? And, while character seems synonymous with personality, there is a definite difference. Although both are used to describe one’s behavior, personality is generally more visible whereas someone’s character is not so evident, and is only revealed over time. Why is this? Character is the foundation for our habits, and it is our habitual patterns of behavior that reveals our character (*gati*).

<sup>74</sup> **Tilakkana (Pali):** “Ti = three; Lakkhana = characteristics; the Three Characteristics, also called the Three Marks of Existence. The Three Marks of Existence are three characteristics of all existence and beings, namely impermanence (*anicca*), un-satisfactoriness or suffering (*dukkha*), helplessness, and non-control (*anattā*).

Our character determines the choices that we make; why we choose to believe what we do and cling to the opinions we have. Personality results from the influence of our *gati*. Our mental character is shaped by our beliefs, which in turn, influences our perception and our perspective or viewpoint. A viewpoint is either correct or incorrect. In between correct and incorrect viewpoint is ignorance. Being *somewhat* correct or incorrect has no value. Being correct translates to truth, which produces beneficial results. Being incorrect or holding incorrect views translates to the false, the negative, producing unbeneficial results. It could rightfully be stated that between right view and wrong view is direct experience. Nothing can set aright wrong views, opinions, beliefs, the way that direct personal experience can. Without it, anything we believe is simply conjecture and guessing or pure ignorance.

Personality and personality traits are large areas of study ranging from psychology to neuroscience. Many theories, tests and studies attempt to isolate certain characteristics that are inherently connected to personality and personality traits. However, the Buddha had already figured this out centuries ago. Buddha isolated three elements that are, in some ways, responsible for one's personality. *Gati* (character) is the first element, the second is called *āsava*<sup>75</sup> (ah-sah-vah) and the third, *anusaya*<sup>76</sup> (ahn-you-sigh-ah).

Sciences that probe the mental world, such as psychology, neurobiology, and neuropsychology, seek answers to questions based on why a person is 'who' they are, whereas the Buddha Dhamma examines why a person is 'what' they are. 'Who,' implies there is some isolated entity, such as a self. Examination directed toward 'what' a person is, does not assume any isolated entity, rather 'what' a person is examines the characteristic elements, which seeks to understand why a person is 'what' they are, not 'why' a person is 'who' they are.

Essentially, there is no 'who' in the Buddha Dhamma. This concept is difficult to comprehend without an understanding of the concept of *anatta* (*an + atta*: See Appendix "an-atta").

Now that the foundation has been laid explaining what *gati* is, we can examine how it relates to rebirth. First, it must be said, that our mental characteristics, and our personalities, really are just a bunch of *gati* traits, which rarely change, until that is, we act either in accordance with them or not. Buddha stated that we inherit and thus own our kamma, and the elements of our kammic profile determines what sort of rebirth we will experience. Therefore, behavior; the acting out of our *gati*, has a direct influence on our kamma, albeit positive kamma (*kusala kamma*), negative kamma (*akusala kamma*) or a kind of conditional kamma known as *puñña kamma*.

Three elements, and their counterparts that cause particular kamma to arise, are known as *lobha* (things associated with greed), *dōsa* (things associated with anger), *mōha* (things associated with stupidity or ignorance), *alōbha* (actions absent of greed), *adōsa* (actions absent of anger), and *amōha* (actions born from wisdom and the absence of stupidity or ignorance). These are all incremental parts that determine our character and personality. Acting on these reveals our personality in any combination at various times. Actions involving characteristics of greed, anger or ignorance (stupidity) produce only negative kamma (*akusala*=negative). Actions that do not involve any of these, but are carried out with generosity, truth, loving-kindness, joyful willingness, and wisdom, produce positive (*kusala*=positive/beneficial) kamma.

<sup>75</sup> **Asava**: "Mental effluent, pollutant, or fermentation. Four qualities; sensuality; views; becoming; ignorance, that "flow out" of the mind and create the flood of the round of death and rebirth." <https://www.accesstoinsight.org/glossary.html#asava> "That which; flows (out or on to) outflow & influx; spirit of one's intent; specified ideas which intoxicate the mind." <https://suttacentral.net/search?query=asava>

<sup>76</sup> **Anusaya**: [masculine] (latent) "Obsession; underlying tendency. (The etymology of this term means "lying down with"; in actual usage, the related verb (anuseti) means to be obsessed.) With conceit (mānānusaya), with passion for becoming (bhava-rāgānusaya), and with ignorance (avijjānusaya). Compare saṃyojana. <https://www.accesstoinsight.org/glossary.html#anusaya>

*Puñña kamma*, is sort of like the middle ground of kamma, but not necessarily neutral kamma. Without any understanding or knowledge of the Four Noble Truths or the Three Marks of Existence (*Tilakkana*), actions are considered *puñña kammā* when the action is virtuous, but there are low levels of greed, hatred or ignorance at play, which are likely unintentional, even hidden. For example: Doing something for someone out of kindness and generosity, with an expectation of something in return, involves a level of greed. While this action would not be considered kusala [good action] kamma, nevertheless the action is still considered positive or virtuous.

Our actions are determined by our overall mix of positive and negative mental characteristics. We might decide to treat someone with generosity, kindness, pleasantness, and compassion. But, for whatever reason, we have made the determination that to do so benefits us in some way. Our actions always derive from the core of our mental character (*gati*). For example, your wealthy grandmother is nearing the end of her life. One might make the determination that it is beneficial to pay more attention to grandmother, strengthening our chances that grandmother may change her Will, favoring you over other people in your family. While the roots of this decision to treat grandmother better have a somewhat positive foundation, they are nevertheless overshadowed or tainted by greed. The deeper we engage our desires the more likely we will outwardly attempt to manipulate grandmother's decision about with whom to leave her fortune.

One of the five precepts that are taken by lay persons and monastics is: "Do not take what is not given." You may rationalize that your motives are strictly altruistic, and you may convince yourself that they are. But, you are manipulating your grandmother in order to fulfil your own desires. In essence you are taking something that is not being given. Again, you might rationalize that in the end, grandmother might willingly give her estate to you, but in the end her actions were manipulated by you. What you have taken that was not given is your grandmother's right to leave her estate to whomever she wishes.

On the surface it appears as though you are acting compassionately, and whether this is true or not is born out when grandmother dies and you are looking forward to the reading of the will, anticipating that your efforts will pay off. Depending on the level of your desire to obtain grandmother's money, determines whether your actions are *akusala kamma* or *puñña kamma*. What are the true roots of your actions? At the very root level, were your actions based in manipulation, dishonesty, underhandedness, covetousness, and so on? Wherever the "true" roots of your actions are anchored determines the type of kamma you create. Planting negative (*akusala kamma*) kamma into your kammic profile may produce immediate results, but will certainly guarantee results in the next life.

### 7.9 Samsaric Habits, Gati and Kamma

Previously, in Sec. 7.8, it was mentioned that certain elements of our mental character are predetermined. How can this be true? First of all, over many lifetimes, we accumulate kammic elements that remain a part of your kammic profile. It's important to understand that not all elements of our kammic, "mental characteristics," are active the moment we are born. While some kammic "characteristics" are weaker and lie dormant, other stronger characteristics are active at birth. This includes both good and bad mental characteristics. The mental characteristic for compassion may be very strong while the mental characteristic for dishonesty is also strong. The mental characteristics, both good and bad that we are born with are known as *samsaric kamma*, meaning that they follow us throughout the samsaric cycle of death and rebirth. This describes the toroidal nature of kamma.

These mental characteristics that become a part of our kammic profile are born from the accumulation of lifetime after lifetime of habits. The interesting thing about *gati* (mental character) is that our *gandhabba* awaits a "gati-matching" womb. A "matching womb" means that the *gandhabba* awaits rebirth to parents (mostly the mother), that have similar *gati* (mental characteristics). If one, for example, carries the characteristic of compassion within their kammic profile, depending on how strong the inclination for compassion is, you will be born to parents of like characteristics.



It is also true that if one carries a kammic inclination to be greedy or ignorant, rebirth will take place in a womb where the parents will have the same mental characteristics. This is why the Buddha framed this teaching as a part of the cycle of *samsara*. Unless an individual comes to an understanding of what she is, and acts to change negative aspects of her behavior, the cycle continues forever. How one comes to an understanding of *kamma* and *gati* is through the Four Noble Truths and meditation.

There are many aspects of *kamma*, and there is no simple explanation, but to fully explain all of them would add perhaps ten pages to this already long paper. You might try and determine the similarities in characteristics of your parents, but most people can only actually name certain habitual behaviors they have in common with them. So, *gati* is not about simple habits, like whether you prefer dark roast coffee, brush your teeth with your left hand or prefer certain colors. Rather, one's *gati* (mental character) is about deep-rooted psychological and moral tendencies, such as existence of certain inclinations related to greed, hatred and ignorance or the absence of any of these. I will share an example from my own experiences.

As a child, when I was old enough to understand, I saw that my father was horribly prejudiced against certain races. I didn't understand racial hatred let alone the reason for it. He expressed his dislike for people of other races so vehemently, it was ugly to see and hear. As I matured, his attitude became disgusting and anathema to me. Knowing what I know now, this was definitely kammically related. His personality was an outward reflection of deep roots of hatred and ignorance, which influenced his behavior, firmly revealing those character (*gati*) traits that he was born with.

Additionally, my father was also a very dishonest person\*. Not that my mother was completely devoid of these things, she was not bigoted nor was she as blatantly dishonest as my father. This naturally leads one to think: "How did I turn out the way I did?" Well, I could have fallen into the same characteristics as my father, but for some reason his behavior disgusted me. So, I avoided the same behavior.

**[\*Author's Note:** *Readers might think that I should not be speaking such things about my father; that I should have compassion for him. The fact is that, yes, in fact I do have compassion and also pity for him, founded upon the realization that his deep seated, kammic ignorance and delusion will likely be repeated for untold lifetimes. Having compassion does not mean that we look away or that we condone wrong views or bad behavior. Compassion does not mean we become a doormat.*]

Although my parents' mental characteristics were certainly a part of my own, these were counterbalanced by a stronger moral sense, which are predominant in my own *gati*. Now, on the other hand, both my mother and father were **very** creative people. My father had a beautiful singing voice. Both parents were very artistic, my mother in particular. Before marriage, my mother was a professional ballerina in a national dance company. I can therefore understand my own *gati* for certain talents that I have, which were most certainly paired with that of my parents. But, not all characteristics are so easily recognized. I can see that my own *gati* was matched with that of my parents in some respects. However, I also realize that my kammic profile must have contained enough *kusala*-type kammic elements to counter the strong negative influences of my parents.

From my example, brief though it is, perhaps this helps to clarify the intricate workings of *kamma* and *gati*. It should also indicate to the reader that *gati* and *kamma* form a strong bond, which is structured similar to a natural law. It is also a structured system that is completely free from any sort of judgmental bias. No wonder the Buddha taught that we inherit our *kamma*.

Our future lives are created via our own actions and our mental, and physical habits. In a contiguous, never ending cycle, we preserve and maintain both good and bad *kamma*, bringing both into future lives. However, there is another, very important aspect of *gati* that must be considered.

#### **7.10 The Law of Attraction and Gati**

No, I am not referring to the "Law of Attraction" as it was presented in the documentary movie "The Secret." However, one of the features of *gati* is its property of "like-attracts-like." There is, similar to *kamma*, good and bad *gati*.



In the example about my father, you can easily identify bad *gati*. *Gati* follows a universal principle where, as in science, “like-molecules” are attracted, whereas molecules with the opposite properties will not attract. Think of oil and vinegar. Not compatible. This principle is true for human beings and animals as well. Persons of like *gati* tend to attract one another, from whence the old maxim comes from: “Birds of a feather flock together.” So, if one cares about the state of their *kamma*, then once you have gained the right view of the Buddhas teachings, you will be able to identify those with bad *gati* (mental characteristics) and avoid such persons. This isn’t just good advice from mom.

In several of his teachings, the Buddha outlined the Law of Attraction by how it works, and how it works is known as *Paṭicca Samuppāda*, but some readers will recognize this phrase in



English as Dependent Origination. Dr. Lal Pinnaduwa explains it quite nicely and succinctly:

“*Pati + iccha*” means to associate or bind with something one likes. “*Sama + uppāda*” means what results (*uppāda* [*uh-pah-dah*]) from that [association] is something similar (*sama*) in kind. That association leads to an outcome of the same kind.”



Imagine a child who is beginning to enter his teen years. This child generally exhibits a good, balanced *gati* (characteristics). Imagine that this child also possesses certain tendencies such as hatred, greed or delusion (ignorance/*avijjā*), which are bad *gati*. This bad *gati* may not be very pronounced.

As mentioned previously, while hatred, greed and delusion (ignorance) are strong words, these are baseline conditions. Meaning that there are many forms of hatred, such as aversion, dislike, meanness, bad language, and so on. Likewise, there are various forms of greed, such as lying; a proclivity for taking what is not given, the justification of which is delusion or wrong thinking, and ignorance.

Children subjected to bad *gati*, will be drawn to mimic parents or friends who exhibit like characteristics. Now, let’s say this child begins associating with other teenagers with bad *gati*. Rather than associating with teenagers who exhibit good *gati*, she falls in with those who do not care about such things as working hard, getting good grades or being honest. She enthusiastically joins others with bad *gati*. Her enthusiasm is delusional. Hanging out with other children who exhibit good *gati* enhances the good *gati* already present in her kammic characteristics. Conversely, hanging out with those who exhibit bad *gati* behavior, overrides her good *gati* and cause the bad, albeit milder form of bad *gati* in her to take precedence. Merely having more dominant good *gati* than bad, is by no means a guarantee that the good will prevent any bad *gati* from becoming dominant. Like *gati* will attracts like *gati*.

Children are influenced by their parents in both good and bad ways. A young child isn’t capable of becoming aware of their own *gati* (mental characteristics). Parents must be mindful of their child’s characteristics, and try to steer them in the right direction. If the parent is ignorant of their own mental characteristics, a child is likely to repeat the cycle of unwholesome *gati* for many lifetimes. In our modern Age, it is now almost a foregone conclusion that a child born into an environment of abuse or violence develops life-long problems. Before a child is capable of understanding such things, the foundation for the rest of their life, indeed for many lifetimes, can be a slippery slope indeed.

### 7.11. A Scientific Basis for the *Operation of Gati*

You might think that *gati* does not have a scientific basis. Science may never be able to discover that *gati* exists, because it is a principle, a law, not a physical thing. But, we can gain confidence in the existence of *gati* because we know how it operates; we know its signature. Experiments conducted in 2019 by Michael Devoret, Professor of Applied Physics at Yale University, discovered that when observing the process of a photon jump in a Quantum State, there is an indication that once the photon is in motion to jump, there appears to be a determinism built into the process. He stated:

*“Absence of an event can bring as much information as its presence.”<sup>77</sup>*

At times, scientific proof that something exists is not necessary because the expected results are always the same, and proves that the “something” exists. There is very strong evidence pointing to how and why *gati* operates in the human brain. Recent discoveries over the last twenty years of brain research has revealed a type of neuron known as the “Mirror Neuron.” This neuron and its related activity in the brain reveals a correlation between neuronal mirror activity and the principle of the “Law of Attraction.”

In the early days of mirror neuron studies, many scientists questioned the presence of mirror neurons in humans. This is not, however, a current issue, given the overwhelming evidence for the existence of mirror neurons in humans from hundreds of experiments carried out with a variety of techniques (positron emission tomography, functional magnetic resonance imaging, transcranial magnetic stimulation, magnetoencephalography and electroencephalography), as well as from a few single neuron studies<sup>78</sup>. Researchers in cognitive neuroscience and cognitive psychology consider that this system provides the physiological mechanism for the perception/action coupling.



They argue that mirror neurons may be important for understanding the actions of other people, and for learning new skills by imitation. Some researchers speculate that mirror systems may simulate observed actions, and thus contribute to a theory of mind skills, while others relate mirror neurons to language abilities<sup>79</sup>.

Why it is that all of this possibly correlates with the principle of *gati* is that the human brain contains a system of neurons that function in such a way as to support elements within our own psyche to which we are attracted. We are therefore attracted to what we like and what we dislike, which is complex. This would explain why people become attracted to wrong or immoral things. Therefore, one could rightfully state that there is a brain function that facilitates a matching of like with like. An important point about mirror neurons is that they trigger more rapidly when we see or hear something that we identify with, even on the subtlest level. It might be rather cheeky to say, but I think a good nickname for these mirror neurons is the “monkey-see, monkey-do” neuron.

Does not all of the information contained in Section 7 indicate that what the Buddha Dhamma contains, in essence, are explanations, which can be summarized as: Human existence, consciousness, morality, death, intention, cause and effect, and rebirth, which are the elementary parts of the total of what it means to experience a human life?

<sup>77</sup> Quantum Leaps: <https://quantuminstitute.yale.edu/publications/quantum-leaps-long-assumed-be-instantaneous-take-time>

<sup>78</sup> Mirror Neuron Research: Past and Future: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4006175/>

<sup>79</sup> Mirror Neurons in Humans: “Brain imaging experiments using functional magnetic resonance imaging (fMRI) have shown that the human inferior frontal cortex and superior parietal lobe are active when the person performs an action and also when the person sees another individual performing an action. It has been suggested that these brain regions contain mirror neurons, and they have been defined as the human mirror neuron system. More recent experiments have shown that even at the level of single participants, scanned using fMRI, large areas containing multiple fMRI voxels increase their activity both during the observation and execution of actions.” [https://en.wikipedia.org/wiki/Mirror\\_neuron#In\\_humans](https://en.wikipedia.org/wiki/Mirror_neuron#In_humans)



This is why I toy with the idea of the existence of some strong emergence between science and the Buddha Dhamma. Any physicist will tell you that truth of the nature of reality is in direct association with one's direct experience and understanding.

## PART 8: Rebirth (jāti)

**“...little things may not seem like much but after a while they take you off on a direction where you may be a long way off from what other people have been thinking about.”**

*-Roger Penrose*

Rebirth is, without a doubt, the touchiest subject when it comes to the teachings of the Buddha. Many people are drawn to the Buddha's teachings because they contain a directness, and convey a sense of practicality. For those who have some knowledge of the Asian cultures, believe that the Buddha's teachings about rebirth are merely a holdover; baggage as it were, from ancient Brahmanism, Hinduism or Jainism. However, rebirth is not a common belief in these religions. A more common belief is the concept commonly known as reincarnation, which was a concept that the Buddha flatly refuted.

Siddhartha's awakening caused him to gain a mental clarity that very few human beings have ever achieved. This allowed the Buddha to piece together certain foundational elements of the human condition, such as death, suffering, and how these things led to the cause of rebirth.

Scholars cannot refute or discount the importance that rebirth holds in the Buddha's teachings. So-called secular Buddhists re-frame the Buddha's teachings to fit their own point of view, removing the necessity for rebirth. Buddha's teachings about rebirth are infinitely bound to the entire corpus of the Pali texts, and removal of them disintegrates the teachings to a meaningless collection of pithy sayings and aphorisms. Without the doctrine of rebirth, there is literally no point to any of the Buddha's teachings. Neither would there be any purpose for his awakening.

There is never any inference in the texts inferring that rebirth is to be thought of symbolically. Rather, the Buddha states, quite plainly, that rebirth occurs “...with the breakup of the body, after death.” This clearly implies that the concept of rebirth is to be taken literally.

### 8.1 Does Rebirth Make Sense?

Once the teachings of rebirth are understood, rebirth begins to make sense with respect to our place in the world, and leads to a better knowledge and understanding of why we are here.



Unlike the various Abrahamic religions (Christianity, Islam and Judaism) that do not have logic-based reasons why we are here, the Buddha's teachings of rebirth correlate perfectly with the principles and laws of nature. In particular the Buddha's teachings on kamma emphasizes that our intentions drive all of our morally determinative actions, which influences both our present and future kamma. Our intentional actions closely correspond to our moral qualities. This teaching basically describes an equilibrium between our actions and the consequences that follow, whether instantly or at some time in the future.

In his essay, titled “Does Rebirth Make Sense?” Bhikkhu Bodhi states:

*“It is only too obvious that such moral equilibrium cannot be found within the limits of a single life. We can observe, often poignantly, that morally unscrupulous people might enjoy happiness, esteem, and success, while people who lead lives of the highest integrity are bowed down beneath pain and misery.”*



*For the principle of moral equilibrium to work, some type of survival beyond the present life is required, for kamma can bring its due retribution only if our individual stream of consciousness does not terminate with death. Two different forms of survival are possible: on the one hand, an eternal afterlife in heaven or hell, on the other a sequence of rebirths. Of these alternatives, the hypothesis of rebirth seems far more compatible with moral justice than an eternal afterlife; for any finite good action, it seems, must eventually exhaust its potency, and no finite bad action, no matter how bad, should warrant eternal damnation.”<sup>80</sup>*

Many people believe and are taught that some form of moral justice must ultimately prevail. Again, Bhikkhu Bodhi refutes this philosophy. To explain that this concept of prevailing moral justice, we turn again to the words of Bhikkhu Bodhi:

*“...let us consider two limiting cases of ethically decisive action. As the limiting case of immoral action, let us take Hitler, who was directly responsible for the dehumanizing deaths of perhaps ten million people. As the limiting case of moral action, let us consider a man who sacrifices his own life to save the lives of total strangers. Now if there is not survival beyond death, both men reap the same ultimate destiny. Before dying, perhaps, Hitler experiences some pangs of despair; the self-sacrificing hero enjoys a few seconds knowing he’s performing a noble deed. Then beyond that – nothing, except in others’ memories. Both are obliterated, reduced to lifeless flesh and bones.”*

Some might consider that the Buddha’s teachings about rebirth sets a sort of standard for moral and ethical behavior that is tied to kamma. Buddha’s reasoning is revealed in that he teaches that to mistreat others, cause them suffering or injury, taking from them what does not belong to us, using various forms of deception, lies, and sexually exploiting others, opposes how we ourselves wish to be treated. Kamma and rebirth certainly serve as an incentive and encouragement to act in morally ethical ways. This incentive follows knowledge of the principles of kamma, rebirth and gati.

Once the difference is understood between bad behavior; bad *gati* (*duggati* = *dukkha* + *gati* <sup>81</sup>) and good *gati* (*sugati* = *sukha* + *gati* <sup>82</sup>), recognition of the consequences begins to develop. Buddha’s teachings, unlike the doctrine and dogma of World religions, do not promote fear with the teachings of kamma, rather they infuse us with a sense of relief and provide conclusive reasons to avoid bad behavior, unwholesome conduct, and strive toward identifying bad or unwholesome tendencies in our character.

One’s desire to insure a better rebirth should be secondary to our desire to accept the probability or plausibility of the Buddha’s teachings, which marks one’s commitment to ethical ideals. This means gaining and maintaining a balance. This is achieved by developing confidence that the teachings regarding *kamma*, *gati* and rebirth (*jāti*) are true; the rest will take care of itself. This is our assurance of a good rebirth. Being overly concerned or worried about the quality of our future rebirth can lead to clinging, and attachment, which certainly could be placed in the arena as a form of greed (*lobha*).

Understanding the foundation and process of rebirth in conjunction with kamma and gati, opens up a window of understanding regarding one’s present life; living conditions; mental characteristics; aptitudes, personality and faults. We begin to see the connection between the features of our present life in relation to our actions in previous lives. Everything about your present life reflects your kammic past and the kammic profile that you have created. This also opens one’s mind to a clearer understanding that we are forming a kammic legacy that you transmit to your own kammic descendant.

Buddha never taught that there was some divine authority, deva, god, or angel that manages and determines the mechanisms of kamma; determining who gets rewarded and who gets punished. Kamma is completely independent, and functions completely autonomously.

<sup>80</sup> **Does Rebirth Make Sense?** BPS Newsletter Cover Essays, Nos. 46 & 47 (3<sup>rd</sup> Mailing 2001) © 2001 Bhikkhu Bodhi, Buddhist Publication Society, Kandy, Sri Lanka, Access to Insight Edition 2005

<sup>81</sup> Duggati: “A wretched rebirth or state of existence; an ill destiny; misfortune, poverty.” <https://suttacentral.net/search?query=duggati>

<sup>82</sup> Sugati: “Happy existence, happy rebirth, bliss, a happy fate; a happy state.” [https://dsal.uchicago.edu/cgi-bin/app/pali\\_query.py?q=sugati&searchhws=yes&matchtype=exact](https://dsal.uchicago.edu/cgi-bin/app/pali_query.py?q=sugati&searchhws=yes&matchtype=exact)

If one needs some mental image to relate to, such as the concept of there being some director or manager of kamma, there is one. It's you! It is your own volitional (*cetanā*) action that is the director and manager of your kamma. There are over 143 teachings concerning one's volition (intentions/*cetanā*<sup>83</sup>) in the Pali texts. It is one's own kammic energy and kammic profile that has determined the present life, and will, in turn, determine your future rebirths.

## 8.2 Kamma Between Rebirths

### Components of the Rebirth Process

Firstly, an explanation of kamma is necessary because an individual's kamma involves many components. For the sake of brevity, the explanation is synthesized to cover the most important points. We need to take a look at a word that is almost synonymous with kamma, which is *saṅkhāra* (sahn-khar-ah).

#### Sankhara

*Saṅkhāra* is derived from the prefix *saṃ*=con, meaning "together," and the verb *karoti*, meaning "to make." Thus, *saṅkhāras* are both things which put together, construct and compound other things, and the things that are put together, constructed, and compounded<sup>84</sup>. This is a complex concept, which has no single English translation that fuses "object and subject" as interdependent parts of each human's consciousness and epistemological process (knowledge of, cognition of, mental activity). *Saṅkhāra* implies such things as "impressions, dispositions, conditioning, forming, perfecting in one's mind, influencing one's sensory and conceptual faculty," as well as any "[mental] preparation" that "impresses, disposes, influences or conditions;" how one thinks, conceives or feels<sup>85</sup>. *Saṅkhāra* includes actions of the body, speech and mind.

Like many Pali words, *Saṅkhāra* has diverse meanings depending on the context in which it is used<sup>86</sup> | <sup>87</sup>. The compounded words "*saṃ*" and "*khāra*" gives the indication of "something added (put together)," while *khyā* indicates the action of removal, decrease or subtracted from. Whenever we "add" something to our kamma, we add (*saṃ*) to our kammic profile and thus to the rebirth (*jāti*) process. *Khāra* is also used to mean "doing." This is the origin of the word "*saṅkhāra*" ("*saṃ*" + "*khāra*").

*Sankhāra* involves all of our actions, the adding to and removing of kammic energies during our entire lifetime. *San* is basically the Pali word for the good (positive & beneficial) and bad (negative & unbeneficial) things that we acquire; add or remove. Therefore, any thoughts (*citta*) or intentions (*cetanā*) involving greed, anger, and ignorance, produce negative kammic consequences. Naturally, any thoughts or intentions we have that are devoid of greed, anger, and ignorance, have no kammic consequences, which means the *citta* (thoughts) and *cetanā* (intentions) are neutral or are the complete opposite of greed, anger and ignorance.

"In the first (passive) sense, *saṅkhāra* refers to conditioned things or dispositions, i.e. mental imprints. All aggregates in the world – physical or mental concomitants; all phenomena, are conditioned things. *Saṅkhāra* can refer to any compound form in the universe whether a tree, a cloud, a human being, a thought or a molecule. All these are *saṅkhāras*, as well as everything that is physical and visible in the phenomenal world are conditioned things or aggregates of mental conditions. The Buddha taught that all *saṅkhāras* are impermanent and have no essence. These subjective dispositions prevented the Buddha from attempting to formulate an ultimately objective view of the world.<sup>88</sup>"

<sup>83</sup> *Cetanā*: "Thinking as active thought, intention, purpose, will. Defined as action Often combd w. patthanā & paṇidhi (wish & aspiration). Also classed with actions of the body (or are willful, called *cetanā-kamma*. Refers to the behavior of the mind (*cetasika-kamma*. Action of the shrinking back from covetousness, malice, & wrong views; intention to give up wrong doing); a state or behavior of volition.

<sup>84</sup> *Sankhara*: Bhikkhu Bodhi (2000) (foornote 9) <https://en.wikipedia.org/wiki/Sa%E1%B9%85kh%C4%81ra>

<sup>85</sup> *Sankhara* (Etymology): [https://en.wikipedia.org/wiki/Sa%E1%B9%85kh%C4%81ra#Etymology\\_and\\_meaning](https://en.wikipedia.org/wiki/Sa%E1%B9%85kh%C4%81ra#Etymology_and_meaning)

<sup>86</sup> *Sankhara* (Diversity of Meaning): <https://suttacentral.net/search?query=sankhara>

<sup>87</sup> *Sankhara* (Engl Translations): [https://en.wikipedia.org/wiki/Sa%E1%B9%85kh%C4%81ra#English\\_translations\\_for\\_the\\_term\\_Sankhara](https://en.wikipedia.org/wiki/Sa%E1%B9%85kh%C4%81ra#English_translations_for_the_term_Sankhara)

<sup>88</sup> *Sankharas* (Conditioned things): [https://en.wikipedia.org/wiki/Sa%E1%B9%85kh%C4%81ra#Conditioned\\_things](https://en.wikipedia.org/wiki/Sa%E1%B9%85kh%C4%81ra#Conditioned_things)

In the Pali texts, the word *sankhara* is applied within three major contexts. First, where *sankhāra* refers to things that are conditioned by ignorance (delusion=*avijjā*), which functions as a condition for consciousness. *Sankharas* are active in three types: bodily, verbal and mental, and are further delineated by actions that are commendable, not commendable, and calm (translated as imperturbable). If you recall, previously mentioned, *sankhāra* involves all of our actions; it is literally the adding to and the removing of kammic energies during our entire lifetime. Therefore, *sankharas* are things that are kammically active volitions (*cetanā*=intentions), which are the causal elements of rebirth (*jāti*).

These are sustained in a forward motion of *samsara*, which is the word that describes the cycle or round of birth and death. When ignorance and craving underlie our stream of consciousness, our volitional actions of body, speech, and mind become forces with the capacity to produce results, and of the results they produce, the most significant is the renewal of the stream of consciousness following death. It is the *saṅkhāras*, propped up by ignorance and fueled by craving, that drive the stream of consciousness onward to a new mode (type) of rebirth.

Exactly what kind of “consciousness” becomes established is determined by the kammic character of a person’s *saṅkhāras*. Kammic energy that is very strong becomes dominant. Therefore, a person who has very strong *gati* (mental characteristics), say for addictions, whatever the addiction may be, will be dominant. Very strong kammic energies for anger, rage, narcissistic ego tendencies or other dominant traits like greed, stupidity, and dullness of mind, follow the individual and likely be the prevalent character of their personality in the next life.

### **Saṅkhāra Khandha**

In the second (active) sense, *saṅkhāra*, with the added word *khandha* (kahn-dah), specifically refers to the form-creating faculty of mind. We form ideas, concepts, perceptions, and so on, with the mind.

*Khandha* simply means a collection of things; a heap of things; a pile of things. Together, *saṅkhāra* and *khandha* are an important part of the Buddha’s teachings about Dependent Origination (*Paṭicca Samuppāda*). In this context, *saṅkhāra* refers to our volitional (intentional) actions that are kammically active. This is an important point because it is this *saṅkhāra* that influences and generates rebirth. Specifically, the Buddha’s use of the phrase *saṅkhāra khandha*, teaches that living beings are reborn (*jāti*) (*bhavana*=become) because of the actions (*kamma*) of the body and speech both presently and those that have accumulated throughout a person’s lifetimes. Furthermore, he taught that all the intentional (volitional) things that we construct in our lives are, in one way or another, conditioned by our ignorance (*avijjā*) of the impermanent nature of the World (*anicca*) and the concept of self (*anattā*<sup>89</sup>).

Ignorance leads to the origination of the *saṅkhāras*, eventually causing anguish, distress and suffering (*dukkha*), which is the mark of the human condition. The longer one lives and acts in ignorance; the more ignorance conditions one’s intentions and volitional mental formations, which in turn eventually condition one’s consciousness. Buddha elaborated:

*“What one intends, what one arranges, and what one obsesses about: This is a support for the stationing of consciousness. There being a support, there is a landing [or: an establishing] of consciousness. When that consciousness lands and grows, there is the production of renewed becoming in the future. When there is the production of renewed becoming in the future, there is future birth, aging & death, sorrow, lamentation, pain, distress, & despair. Such is the origination of this entire mass of suffering & stress.”<sup>90</sup>*

Take special note of Buddha’s statement:

*“This is a support for the stationing of consciousness. There being a support, there is a landing [or: an establishing] of consciousness. When that consciousness lands and grows, there is the production of renewed becoming in the future.”*

<sup>89</sup> **Anatta:** “Anattā (Mundane Interpretation) – No “Unchanging Self” <https://puredhamma.net/key-dhamma-concepts/anicca-dukkha-anatta-2/anatta-systematic-analysis/anatta-no-unchanging-self/> | <https://suttacentral.net/sn44.10/en/bodhi?reference=none&highlight=false>

<sup>90</sup> **Samyutta Nikaya 12.38** (*Thanissaro*): <https://www.accesstoinsight.org/tipitaka/sn/sn12/sn12.038.than.html>

The words ‘stationing,’ ‘landing,’ ‘establishing,’ ‘production of renewed becoming,’ implies that consciousness is something apart from the human being, supporting the concept that human beings ‘connect’ with consciousness. Buddha did not say ‘when’ consciousness arises or develops in the human. In modern language, we might re-write the Buddha’s statement as follows:

*“This is a support for the connecting of consciousness. There being a living human and a brain, there is a connection to consciousness. When consciousness becomes established and the human being begins to grow, there is the causal reason for rebirth in the future.”*

Being that everything is conditioned, including our mental character (*gati*); our temperament, and our viewpoint, all perceptions are devoid of any real essence, which means they are highly unreliable sources for true happiness because of the impermanence of their nature. Understanding this is the dividing line; the demarcation between ignorance (*avijjā*) and wisdom (*pañña*). According to the Mahāparinibbāna Sutta<sup>91</sup>, the Buddha’s last words just before he died were:

*“This I declare to you: All conditioned things are subject to disintegration, therefore, strive un-tiringly for liberation.”*

The liberation from what? **From ignorance!**

### **Jāti, Kamma Bhava, Kamma Vipāka & Kamma Bija**

Next, we consider the words *jāti* and *bhava*. *Jāti* of course means “birth” or “rebirth.” *Bhava* means “existence.” The word “*bha*” means “establish” (*bha* + *va*=established/exists). When one gets a human existence after the death process takes place, and during the *cuti-paṭisandhi* moment, the mental body (*gandhabba*) is formed with an attendant mind-base known as the *hadaya vatthu*, and a set of *pasāda rupa* (five senses). *Hadaya vatthu* is the heart of the *gandhabba*, so to speak. *Hadaya vatthu* is an essential active energy assisting with the binding of the *gandhabba* to a person. In its mundane Pali definition, *hadaya* means “heart” and *vatthu* means a “grounding” or “seated,” thus *hadaya vatthu* refers to the “seat” or door of our intentions/volitions, thoughts or mind.

As mentioned previously, there must be a body together with a *gandhabba* and a healthy brain that senses consciousness in order to facilitate mind (*gandhabba* + body + brain > senses consciousness < = mind). The subtle body of the *gandhabba* actually has a simple set of “sensing units.” Consider that in the first month, a baby’s brain begins to form in the neural tube. By week 7, the brain grows at the rate of 250,000 neurons per minute, and begins first developing the sense of touch. Shortly thereafter the fetus begins to feel pain. Even at this early stage of development, the tiny fetus has senses, which means it is beginning to develop the mind-door, the *hadaya vatthu*.

The *hadaya vatthu* (mind-door/heart of the mind) is very closely related to the five *pasāda rupa*, (*cakkhu*, *sota*, *jivhā*, *gandha*, and *kāya*), which correspond to the five physical senses of the eye (*cakkhu*), ear (*sota*), tongue (*jivhā*), nose (*gandha*), and touch (*kāya*). The main thing to remember is that *hadaya vatthu* is the mind-door or the heart of the mind; seat of the mind; generator of mind.

Next, we examine *kamma bhava*. Remember that *bhava* means something that gets established, and of course the word *kamma* (*Skt*: karma) means action. Therefore, *kamma bhava* are actions that become established or come into being. Our *kamma bhava* (established actions) create what is known as a *kamma bija*. *Bija* means “seed,” therefore *kamma*, being “action” and *bija* meaning seed, refers to the kammic seeds of our actions. The consequences of our actions, particularly if repeated frequently, develop these seeds that can develop into a part of our kammic profile, and like seeds, they can become active at any time, given the right conditions. *Kamma bijas* always remain consecutively connected to one individual kammic profile (*kamma bhava*) through the consciousness connection and the *gati*.

Identification of *kamma bijas* are contiguous with a person’s kammic profile (*kamma bhava*) and the *gati*. At the moment a *gandhabba* attaches to a womb of like *gati*; the brain begins developing, thus facilitating sense experience, making it possible for the brain to sense consciousness, thus activating mind. This round of rebirth continues until the *kamma* has been exhausted via a complete awakening.

<sup>91</sup> Mahāparinibbāna Sutta: <https://www.accesstosight.org/tipitaka/dn/dn.16.1-6.vaji.html>



Let's track a *kamma bija* that's a part of a person's kammic profile (*kamma bhava*), one which has become an element of the person's *gati*. A person who's addicted to food eats habitually, not because they are hungry; they have developed an attachment to the taste of food. This might lead to gluttony, which is a "form" of greed. Modern people have developed insulin resistance<sup>92</sup>, to near epidemic proportions<sup>93</sup>. Such a person craves (*āsava*) the taste of food and so has developed a *kamma bija* (kammic seed), which then becomes a *kamma vipāka* (consequential outcome) forming a *gati* (a mental character trait). The habit forms a *kamma bija*, which then becomes a part of the person's kammic profile (*kamma vipāka*). This condition is caused by wrong thinking or wrong views (*miccha ditthi*) because food is not viewed as fuel for the body, but something to be enjoyed, savored, indulged in, thus developing an intimate relationship with food (clinging and craving).

People develop habits, which over time become a mental characteristic, an integral part of their *gati*, either through influence or on their own. They could have been born (*jāti*) with a predisposition to gluttony. This means the existence of a *kamma bija* (kammic seed) within the person's kammic profile (*kamma bhava*), which is a strong element of their kammic energy. A mind-set exists such that a *gati* habit is triggered by merely seeing food, thinking about the taste of food or images of food. This is true for all *gati*-related addictions involving substances, such as alcohol, marijuana, vaping, smoking, sugar, carbohydrates or mental forms of *gati*, such as depression, narcissism, anger, jealousy, stinginess, delusion, stubbornness, skepticism, and many more human characteristics that are not natural nor beneficial behaviors.

This mental-state-cycle is described in the Pali text as "*bhava paccayā jāti*" ("bah-vah" "pach-che-ye-yah" "jah-thee"), which is connected to the processes of *Paṭicca Samuppāda*<sup>94</sup> (Dependent Origination), and which operates during one's present life, leading our overeater to repeat her habitual behavior many, many times, perhaps in lifetime after lifetime. Conversely, a person who simply views food as fuel for the body, although having preferences (likes & dislikes) for certain foods, enjoys consuming food, does so when hunger reminds him of the need for food, but does not have the (*gati*-based) proclivity for overeating.

This is true, for example of a person who may not have gluttony in their *gati* (mental character) or kammic profile, and is unlikely to become addicted to the attachment of the "idea" of the taste of food as a focus of his life. We all know the limericks attributed to food, such as, "Being on the "see-food diet;" *viñ* "I see food and eat it" or the maxim, "Do you eat to live or live to eat?" However, this habitual characteristic is no laughing matter. A person who doesn't have a *kamma bija* (kammic seed) for the attachment to (*tanha*) or craving (*āsava*) of the taste of food, the condition isn't there, so it is not a feature of his *gati* (character). This doesn't mean that a person can't or won't develop these things in the present life. But, let's break this down further so it is easier to understand. Right now, your life, your existence (*bhava*) is as a result of elements that existed in your kammic profile in the form of kammic seeds (*kamma bija*). You exist the way you do because of the elements of your kammic profile, which you brought with you into this life.

<sup>92</sup> **Insulin Resistance:** "People with insulin resistance, also known as impaired insulin sensitivity, have built up a tolerance to insulin, making the hormone less effective. As a result, more insulin is needed to persuade fat and muscle cells to take up glucose and the liver to continue to store it. In response to the body's insulin resistance, the pancreas deploys greater amounts of the hormone to keep cells energized and blood glucose levels under control. This is why people with type 2 diabetes tend to have elevated levels of circulating insulin. The ability of the pancreas to increase insulin production means that insulin resistance alone won't have any symptoms at first. Over time, though, insulin resistance tends to get worse, and the pancreatic beta cells that make insulin can wear out. Eventually, the pancreas no longer produces enough insulin to overcome the cells' resistance. The result is higher blood glucose levels, and ultimately prediabetes or type 2 diabetes." <https://www.diabetes.org/healthy-living/medication-treatments/insulin-resistance>

<sup>93</sup> **Diabetes mellitus: The epidemic of the century:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4478580/>

<sup>94</sup> **Paṭicca Samuppāda:** "The chain, or law, of dependent origination, or the chain of causation describing the causes of suffering (*dukkha*), and the course of events that lead a being through rebirth, old age, and death." | "Everything affects everything else. Everything that is, is because other things are. What is happening now is part of what happened before, and is part of what will happen next."

Your life represents a *kamma bhava* (kammic existence/kammic becoming). You became what you are now due to kammic seeds (*kamma bija*) that exist in your kammic profile. Kamma (action) IS the act, while *kamma vipāka* is the result of an act. Here, there is an important factor to keep in mind. While we all have countless *kamma bija* (kammic seeds) as part of our kammic profile, *Kamma vipāka*, the result of one's actions (*kamma*), are not all present and active all the time or all at once. The right conditions must exist in order for a kammic seed (*kamma bija*) to become active. An active *kamma bija* will produce a result, a consequence, of the actions that created the kammic seed in the first place. This "active state" is *kamma vipāka*.

Let's return for a moment to the person with a mental characteristic (*gati*) of gluttony. As a child, this person's behavior may not show any signs of a mental attachment to food. However, during adulthood, when she has more control over what she chooses to eat, she succumbs to the plethora of commercial advertising for fast foods and sweets. Because she already has a mental proclivity, via a *kamma bija* to overindulge, she may inadvertently begin to focus her attention on food. This process, these chains of events, are setting up the conditions for the kammic seed (*kamma bija*) to become activated (*kamma vipāka*).

This is not to say that she "will" or "must," in a destiny sense, become gluttonous. Other parts of her kammic profile and mental characteristics may warn her of the dangers to one's health from overeating and eating too much of the wrong foods. She thus develops the intention to be mindful of her proclivity to overeat, and so she purposely makes herself mindful of this for the sole purpose of avoiding the physical pitfalls of succumbing to such behavior (actions). If, however, she is aware of her proclivity to overeat, but decides to ignore it or convince herself that she can beat the odds, then she not only strengthens the *kamma bija*, and *kamma vipāka*, but keep both alive and well to be transferred into the next life.

Returning again to the Pali phrase, "*bhava paccayā jāti*," we know that *bhava* means "becoming," "to become" or the past tense "became," "of existence," or "existing," depending on contextual usage. *Paccayā* means the cause; the requisite cause, or the means that supports a cause, and *jāti* means birth and rebirth, again, according to contextual usage. Therefore, the phrase describes the **cause** of rebirth. All of the other Pali words and phrases that designate the "elements" of existence, culminate with the *bhava paccayā jāti*.

### **Sankhara: Relationship Between Bhava, Jāti & Gati**

Previously, *Bhava* was discussed briefly. *Bhava* means "existence" or something that has become. *Bhava* is intimately related to *gati* (mental character). One "builds up" a given *bhava* (a becoming "something") by engaging in activities that cultivate a particular state of mind, culminating in specific actions and intentions. This happens due to the operation of *Paṭicca Samuppāda* cycles during a given life. Take for example, a person who is prone to alcoholism, because it is a part of their kammic profile, kammic energy and *gati*. That person may be drawn to others whose behavior often involves drinking alcohol. Associating with such people primes the conditions for her to drink, frequenting establishments that serve alcohol, providing a moist environment for this *kamma bija* (kammic seed) to gestate and thus become active.

I have a close friend whose family has struggled with alcoholism for decades, reaching back in their family history for many generations. Most of his relatives who were afflicted with this disease died of alcohol-related illnesses. For his own alcoholism, he paid a heavy price by suffering long-term consequences (*kamma vipāka*). He poisoned his body with alcohol to the point of causing his liver and kidneys to shut down. On his deathbed in the hospital, he suffered heart failure. The attending doctor pronounced him dead. For several minutes his body lay dead. Suddenly his heart began beating, and that was twenty years ago. He continues to suffer from the consequences of his former habit with liver damage, diabetes, and heart problems.

Although not consuming alcohol for twenty years, what a price to pay! However, his son is aware of the dangers of being prone to alcoholism and so does not drink alcohol at all. The last death in his family due to alcohol was his 31-year-old cousin who died this year (2022) from Cirrhosis of the liver. People who have similar bad or foolish habits (*mohacarita*<sup>95</sup>) tend to associate with one another; they are attracted by what is familiar to them. Doing so provides conditions for kammic energies and *gati* to become (*bhava*) active through a strong sense of craving (*āsava/tanhas*). Craving is like an accelerant that is thrown onto an already existing fire. It cannot be stressed strongly enough how our associations affect our *kamma*. The habits we build up during our life, whether good or bad, influence our kammic energy, our kammic profile, and our *gati*, but not only this, our habits set the foundation for the quality of our future lives. We become (*bhava*) what we create through our actions, habits, our intentions and thoughts. This is true not only because of what we do, but what we habitually think about.

Habitual views, whether good or bad; habitual thinking, deepens, and strengthens our characteristics (*gati*) or maintains certain characteristics that we already have (*kamma bija*). By thinking about something habitually, we run the risk of giving in to our cravings (*āsava*) and attachments (*tanhas*), thus setting a tone for our future *kamma bhava* (“actions” that will “become”) after *jāti* (rebirth). Once we have solidified our *gati* (mental characteristics) either through habitual thinking, habitual actions or habitual speech, and have created subsequent *kamma bijas*, at the moment of our death (*cuti paṭisandhi* moment) and undergo rebirth (*jāti*), we will be drawn (*upādāna*=willingness, adopting, accepting, embracing) to environments that are compatible with one’s prominent habitual characteristics (*gati*) or what one had become (*bhava*) in previous lives. *Kamma bija* are related to *bhava* (becoming), because developing habits, again, whether good or bad, through repetition, the “person” that has “become” (*bhava*); *kamma bija* are either newly created or become stronger. In the end, one’s kammic profile remains intact between rebirths.

As mentioned previously, this is known as the *upādāna paccayā bhava* step. When one becomes (*bhava*) willingly attached (*upādāna*), they will experience a similar willingness to associate or participate in the *kamma bhava* that was created in their last life. Do you think perhaps it might be important to examine the root causes of habitual behavior patterns? So, whenever we become attached (*taṇhā*) through craving (*āsava*) something, it is almost always because of our willingness (*upādāna*) to do so, whether it is obvious or not. Willfully embracing (*upādāna*), is due first to craving (*āsava*), which is the doorway to attachment (*taṇhā*), which are both intimately linked to the feelings (*vēdanā*) that we experience. If we develop a liking for something, the experience of “liking” might be compared to the fuse on a stick of dynamite.

With ignorance (*avijjā*) and/or delusion (*mōha*) as the foundation; feelings (*vēdanā*) arise due to (*saṇ*)*phassa* (some form of contact) or association with, what is known in the text as *salāyatana*<sup>96</sup>, which is an inappropriate use of the body’s six senses. *Salāyatana* arises due to what is known in the text as *nāmarupa*, which are visuals (contact/*phassa*) associated with people and activities. The cause of *salāyatana*-triggers (sense-triggers) are various forms of *saṅkhāra*, which, if you recall, are things that are conditioned by ignorance (*avijjā*). Therefore, you have *saṅkhāra kāya* (ignorance or delusion expressed by the body), *saṅkhāra vaci* (ignorance or delusion expressed by the words, speech), and *saṅkhāra manō* (delusion expressed by the mind) always arising in connection with particular activities.

Most people, particularly in the West, are completely unaware of the workings of kamma or the Buddha’s extensive teachings of rebirth (*jāti*). Most people hold the concept, and wrongly so, that kamma is some form of justice system; you get what you give or what goes around comes around. This is *miccha ditthi* or wrong view. Buddha’s teachings about kamma are no less scientific than the complex systems of Quantum Mechanics or the physiology of the human body. Rightfully, Buddha Dhamma is representative of the complexity of the world, human life and the human condition.

<sup>95</sup> Mohacarita: “Of foolish habits.” <https://suttacentral.net/search?query=mohacarita>

<sup>96</sup> Salāyatana: “Sight, sound, smell, taste, touch, and thought.” <https://suttacentral.net/search?query=sal%C4%81yatana>

**Author's Note:** *The preceding presentation under the heading "Kamma Between Rebirths" is far from being complete and is greatly condensed. A complete discussion of kamma would fill many hundreds of pages of explanation, not to mention the various separate elements in connection with kamma.*

### **8.3 Contemplating the Possibility that Rebirth is True**

**"Some people take the view that we happen by accident. I think that there is something much deeper, of which we have very little inkling at the moment."** -Roger Penrose

We live in a world of relationships. Many elements of life are derived from, and created by related interactions. Everyone is aware and comfortable with the interrelatedness of the construction of the human body. We are also aware of the interrelatedness of mental interactions, although we are not always comfortable with them. Although death causes great pain and anguish, we accept death as a part of the human condition without question.

Materially, we are aware, to one degree or another, and comfortable with the workings of the Universe, including the physical world. Although we maintain these positions, mostly without question, why is it that we pull-back from being comfortable with the concept of rebirth? Yet, rebirth explains so much about the human condition. What is it that gets in the way of accepting rebirth as a fundamental truth about human existence? The problem of disbelief in rebirth is not to be found in trying to prove rebirth, rather it resides in the effort to disprove rebirth. Attempting to prove something with no evidence is, of course, impossible. However, when one makes the attempt to *disprove* the concept, one cannot find any supporting criteria for doing so. In fact, in trying to disprove rebirth we find all kinds of scientific reasons that rebirth should be true. What would be needed to disprove the claim of rebirth? What method of scientific testing could isolate the moment when consciousness disconnects from the body at the moment of death? How could the continuity of a stream of consciousness be proven?

Based on our current science, the answer to these questions may not be attainable at this moment in time, but what would demonstrate conclusively that such a process does **not** occur or is impossible?

### **Falsifiability**

Rebirth, to me, seems to be the perfect concept to apply the scientific measure of what is known as falsifiability<sup>97</sup>. Any concept, theory or hypothesis is falsifiable (refutable) if it can be logically contradicted by an empirical test that can potentially be executed with existing technologies. Put more simply, any statement, concept, hypothesis or theory is falsifiable when it can be contradicted by an observation. Therefore, if such an observation regarding *is* impossible to make, with current technology, falsifiability is not achieved. Rebirth cannot be disproved by any scientific empirical test.

Considering that scientists now agree that consciousness is not a product of the brain, *theorizing* it to be a separate, perhaps an energy-like field, then we cannot equate conscious awareness to the brain alone. In order to experience awareness, a human brain, and consciousness must be present to facilitate awareness, which we call mind. However, scientists cannot reject this theory of consciousness *a priori* because there are no means of testing the falsifiability of the theory. Curiously, rebirth is **not** devoid of a detailed explanation nor absent of supporting physical-related data, and yet is rejected *a priori*. Is the untestability of consciousness a sufficient basis for rejecting the theories? Would not rebirth fall under the same sort of criteria? Absence of proof is not proof of non-existence, as Quantum Physicists well know.

At the moment I am listening to sounds of nature playing from my computer in the background while writing. If my sound card were to suddenly fail, it does not mean that the streaming source has stopped broadcasting. The breakdown of my computer processor (CPU) does not mean (in most cases) that the data held on DropBox is no longer there. This is no different than when the brain dies, consciousness is still there awaiting a receiver.

<sup>97</sup> Falsifiability: <https://en.wikipedia.org/wiki/Falsifiability>



That my NIC-card is broken doesn't mean that the music streaming sources have disappeared or ceased broadcasting. My NIC-card mediates or negotiates electronic signals in the form of waves through the computer's CPU, directing them through a sound card then to speakers, quite literally to the physical plane where I sit. My ears receive the sound waves, which my brain mediates and negotiates in order for me to recognize and understand the context of the sounds.

The Buddha was able to provide a logical explanation for the process of death and rebirth, in great detail. Some of those explanations come amazingly close to various modern scientific concepts. Previously, it was stated that: *"Any concept, theory or hypothesis is falsifiable (refutable) if it can be logically contradicted by an empirical test that can potentially be executed with existing technologies."* At present, we do not have any empirical test able to logically contradict the concept of rebirth.

The scale of data leaning in favor of rebirth, is beginning to pile up. However, blocking any definitive answer is an enigma and a paradox, which represents the mother of all scientific hurdles, which is known as the Quantum Enigma. Among other things, this Enigma has created some interesting questions about the nature of reality. The Enigma wrestles with the duality of scientific exploration and the effect, if any, the observer brings to the equation or solution, as it were. According to Rosenblum & Kuttner;

*"The Quantum Enigma arises directly from quantum experiment through the free choice of the experimenter. Quantum mechanics reveals a mystery at the boundary of physics: that observation strangely influences what is observed. Quantum Enigma focuses on this increasingly discussed 'skeleton-in-physics-closet:' its encounter with consciousness."<sup>98</sup>*

While modern science has transcended many limitations created by classical physics, this transcendence has led many scientists to contemplate and consider the role that human consciousness plays in the nature of reality itself. This transcendence has also opened the door, albeit a crack, to consider the possibility that consciousness and rebirth are within the scope of scientific understanding. But, we are not there yet.

Some scientists contend that the physical sciences will never be able to quantifiably prove that consciousness is a field of energy or that the existence of rebirth are possible. However, present science is broadening its scope, which means that perhaps the right questions are being asked, making therefore, subjects such as rebirth, and consciousness to come within the scope and purview of science. Modern science is inching closer to accepting rebirth as a scientifically acceptable probability.

Consider that matter becomes energy. Energy becomes matter. Consciousness is basically energy. Science is beginning to support the notion that mind is perhaps a field of energy rather than a product of the brain. If consciousness is energy, a concept gaining scientific acceptance, isn't it reasonable to assume rebirth is possible, particularly when considering the work of scientists such as Ian Stevenson<sup>99</sup>. Absent of contrary evidence, rebirth does fit the model of physics in the same way that consciousness does. There is no definitive scientific evidence yet, but conceptually rebirth is a better fit with Quantum Mechanics than extinction. Materially, rebirth certainly has a better fit with known scientific knowledge than with extinction.

An implication exists suggesting that ancient sages, such as the Buddha, intuited what modern physics is now discovering. Upon scrutiny, one is able to confirm these findings of physics within the teachings of the Buddha. Such is the case with Quantum Mechanics, which has revealed strange things about the world and reality; things such as the concept of rebirth that we do not yet fully comprehend. However, the discoveries within Quantum Mechanics consistently deliver things that are beyond what is generally considered physics. Although being utterly imperceptible, we accept as true certain Quantum mechanisms involving models. Models such as an electron disappearing then reappearing; jumping instantaneously from one atomic orbit to another; disappearing from one orbital only to mysteriously reappear in another.

<sup>98</sup> Quantum Enigma: <http://quantumenigma.com/>

<sup>99</sup> Dr. Ian P. Stevenson: [https://en.wikipedia.org/wiki/Ian\\_Stevenson](https://en.wikipedia.org/wiki/Ian_Stevenson) | <https://near-death.com/ian-stevenson/>

Where does the electron go when it disappears? Such scientific reality, like rebirth, certainly is beyond classical science, but now may find some element of explanation through Quantum Mechanics. However, without modern scientific methods of discovery, such phenomena lie far beyond our mere mental machinations and imaginations.

Consider now: Are we amenable to accepting such things because these models have been proven to exist by, in some instances, living scientists, whom we accept as the authorities of scientific truth based on a consensus that recognizes their education and knowledge? We accept Galileo's finding of heliocentrism, yet he lived hundreds of years ago. Much of all historic scientific discovery; indeed, also of modern scientific findings, owes such discoveries to nothing more than logical intuition. So, why do we accept the logical intuition of someone like Galileo, but dismiss the logical intuition of the Buddha? Until someone came along to empirically prove Galileo's claims, his intuition was not accepted.

How different is the Buddha from such persons? Do we discount or hold the Buddha's knowledge as merely mystical because we have been told such, and have adopted that perception? Do the Buddha's intuitions about the nature of reality mean less because competing factions of philosophy and religion have promulgated confusion and disinformation? There is a reason why the teachings of the Buddha are dismissed and rejected *a priori*<sup>100</sup>?

Abrahamic religions have been integrated with, and supported by, many of the most powerful political and social structures of World nations for thousands of years. Historically, this partnership created an impenetrable hegemony preventing and blocking any thinking that did not support the doctrine or dogma accepted by the partnership between religions and political structures. The "church," in whatever form, essentially installed braces on the brains of people for thousands of years. Not something that is easily changed in a short period of time.

Copernicus, like many modern scientists, hesitate to rock-the-boat, so to speak. As Sam Harris writes: "*In the spirit of religious tolerance, most scientists are keeping silent when they should be blasting the hideous fantasies of a prior age with all the facts at their disposal.*"<sup>101</sup> However, modern physics has the potential to unlock the mysteries of consciousness and rebirth because of what is already understood of atomic behavior. Unquestionably, consciousness and rebirth have some conformity with the mechanisms of the atomic world. An exact science to identify such mechanisms has not been discovered—yet. Consider that science has nothing of substance with which to work in order to prove things claimed by Abrahamic religions. Conversely, scientific discoveries have consistently touched on the trueness and probability of trueness of various elements of the Buddha Dhamma.

The Buddha stated: "*Mano pubbangama dhamma, mano setta manomaya.*" "*Mind precedes all dhamma, all dhamma are mind made.*" Some translate this statement to mean that only mental phenomena are created by mind. However, the Buddha taught that the mental and material worlds are intimately connected, which is a concept that is beginning to be supported by modern scientific reasoning in connection to wave function and string theory. Dhamma does not refer to just mental phenomena, it explains how everything in this world comes about. Dhamma literally means 'to explain' how everything is formed, because as the Buddha stated in his teaching of *Paṭicca Samuppāda* (Dependent Origination), nothing happens without multiple causes.

It certainly appears from the research of the last 80 years or so, that scientific findings agree with the Buddha's assessment. Does any such state of agreement exist with regard to the Abrahamic religions? No, not on any level, with any doctrine or any dogma. As modern science has abandoned the limitations of sensate values alone, it affirms that the truth about the nature of reality is beyond the material world, that gaining knowledge through intuition is valuable.

<sup>100</sup> **a priori**: Latin "Presumptive; derived by or designating the process of reasoning without reference to particular facts or experience; knowable without appeal to particular experience; formed or conceived beforehand; used in philosophy to distinguish types of knowledge, justification, or argument.

<sup>101</sup> **Sam Harris**: <https://www.samharris.org/blog/science-must-destroy-religion>

This concept is echoed by the Nuclear physicist Fritjof Capra, who stated that the old rationalist thinking of classical science led scientists to such things as the atomic bomb, while modern science leads to the teachings of the Buddha<sup>102</sup>.

No matter how one examines the doctrines of the Abrahamic religions, no possibility exists whereby science could prove any facet of the doctrines, which have been taught for centuries. This fact should provide the reasoning needed to understand that neither the Buddha Dhamma nor the Buddha himself, constitutes religion. Outside of archaeology or history, which has attempted to verify the physical historicity of the Abrahamic claims, with little success, there are no other provable means available, other than blind faith that can confirm their claims in the way science is able to do with the teachings of the Buddha. There is a real scientific probability in favor of confirming such things as rebirth, which can be examined by application of provable scientific laws, such as the conservation of energy. Such probability exists, if yet only by application of the scientific method, which includes thought experiments and intuition. This is significant.

What is relevant to our knowledge of the understanding of the nature of reality? The answer is, as the Buddha taught: Direct Experience. The question posited by the Quantum Enigma: Does our direct experience somehow alter our knowledge of, and influence the nature of reality? The Buddha's teachings imply that the answer to this question is a resounding "yes."

Humankind have accepted the concepts of nature and the human condition, as presented by the Abrahamic religions, with no other proof than that which is absent of a better explanation. Couple this with centuries upon centuries of proselytizing and marketing, with the blessings of the World's major political powers, thus, I say, upon this rock the myths were built.

Proving his belief in rebirth, even the staunch materialist, Rene Descartes wrote in 1641:

*"What I have said is sufficient to show clearly enough that the extinction of the mind does not follow from the corruption [death] of the body, and also to give men the hope of another life after death."*

Despite the influential stranglehold the Abrahamic religions once held on scientific truth, modern science is whittling away at their mythical doctrines removing the braces from people's brains. No matter how such mythical doctrine is presented or in what manner they are devised in an attempt to represent the truth about the nature of reality, these religions simply cannot provide any insight into the causes or conditions that define the human condition and the world around us. If nothing else, modern science has opened up the possibility for alternative explanations based on decades of irrefutable scientific data.

It is just as true that in the time of Galileo as it is for modern scientists; whenever some new scientific discovery goes contrary to the religious doctrines popular in Western countries, acceptance by the general public is difficult. This is what happened to Darwin. This will be the fate of any scientific theory or discovery that confirms the existence of rebirth. Any scientific discussion of rebirth would, by necessity, have to be from an unbiased point of view. A way must be made that bypasses the dualistic barriers of religious doctrine and dogma. How could this be done? Well, firstly, it could be approached in the same fashion as the current methods of standard scientific procedure.

From where do the keys to understanding the conditions of the Universe come from? Have the Abrahamic religions provided humankind with any realistic or viable answers that help us to understand the truth about the nature of reality? Other than science, who is it that has provided concepts that align with those that modern science is now discovering? The Buddha. Can this be intelligently said about the Abrahamic religions?

<sup>102</sup> **Fritjof Capra:** "Scientists, therefore, are responsible for their research, not only intellectually but also morally. This responsibility has become an important issue in many of today's sciences, but especially so in physics, in which the results of quantum mechanics and relativity theory have opened up two very different paths for physicists to pursue. They may lead us - to put it in extreme terms - to the Buddha or to the Bomb, and it is up to each of us to decide which path to take." The Turning Point: Science, Society, and the Rising Culture

In his study of rebirth, Nuclear scientist, Dr. Granville Dharmawardena<sup>103</sup> wrote:

*"Rebirth may be defined as the re-embodiment of an immaterial part of a person after a short or a long interval after death, in a new body, whence it proceeds to lead a new life in the body, more or less unconscious of its past existences, but containing within itself the "essence" of the results of its past lives, which experience goes to make up its new character or personality. Thus, infancy brings to earth not a blank scroll for the beginning of a new earthly record, but one inscribed with ancestral histories, some like the present scene, most of them unlike it, and stretching back into the remote past. As science advances, it gets closer and closer to reality, and this also brings science closer and closer to the teachings of the Buddha.*

*In the rebirth scenario, death is not an event horizon [like a Black Hole] because only the body, the material part, disintegrates and goes into a state of no return. The immaterial part enters into a scientifically unknown state and reappears, after a period, in a scientifically known state in the body of an unborn infant. This is just like the way an electron disappears from an atomic orbital and reappears in another without passing through the space in between, the difference being that in the disappearance and reappearance of an electron there is no time gap in between."*<sup>104</sup>

Is there evidence of falsifiability with regard to the concept of kamma and rebirth? As mentioned previously, '...any statement, concept, hypothesis or theory is falsifiable when it can be contradicted by an observation.' If there were any measure of falseness in the concept of rebirth, given what has been demonstrated by scientific discovery, which may be applicable to rebirth, such falsifiability would be demonstrably evident. It is not. Science is skirting the edge of the event horizon with regard to the subjects of consciousness and rebirth. If such subjects, rebirth in particular, have a strong connection of probability within scientific discovery, then by scientific symmetry, kamma must also be included.

As the Buddha said in his teaching recorded in Majjhima Nikāya iii. 63; and the Samyutta Nikāya v. 387:

*"This existing, that exists;  
this arising, that arises;  
this not existing, that does not exist;  
this ceasing, that ceases."*

All scientific law of causation could be stated thusly: "Scientific research" emphasizes an important principle that all phenomena in this universe are relative, conditioned states, and do not arise independently of supportive conditions.

The Buddha's teaching on the law of causation is states:

*"This law [Dependent Origination/Paṭicca Samuppāda] emphasizes an important principle that all phenomena in this universe are relative conditioned states, and do not arise independently of supportive conditions."*<sup>105</sup>

I posit the following question to scientists, in particular to those scientists involved with the field of Quantum Mechanics and Quantum theory, as well as consciousness research:

*Considering where science is at present, would it not be conducive to consider what the Buddha knew, if for no other reason than to determine where the Buddha's teachings are parallel to current scientific knowledge?*

## 9.0 Conclusion

This essay was designed to examine a broad overview of several topics relating to the possibilities, and probabilities, that the methods of inquiry employed by the Buddha coincides with that of the modern Scientific Method, but also that modern scientific knowledge agrees with the teachings of the Buddha. From the beginning of this paper, through to the end, my intention is, as is my hope, that the information presented here reveals a pattern of noticeable symmetry between modern science and the teachings of the Buddha.

<sup>103</sup> **Dr. Granville Dharmawardena:** Considered an eminent nuclear scientist. Referenced in nuclear science text books in the United Kingdom and United States of America. Educated at Cambridge University in the United Kingdom, Harvard University in the United States, and the Australian School of Nuclear Technology, Australia. Served on the Atomic Energy Commission in France.

<sup>104</sup> **Scientific Acceptability of Rebirth:** Research paper presented at the Annual Sessions of The Sri Lanka Association for The Advancement of Science; Dharmawardena, Granville, PhD, Buddha Dharma Education Association Inc 1996:

[http://www.buddhanet.net/pdf\\_file/rebirthscience.pdf](http://www.buddhanet.net/pdf_file/rebirthscience.pdf)

<sup>105</sup> **Law of Dependent Origination [Paṭicca Samuppāda] :** <https://www.budsas.org/ebud/whatbudbeliev/106.htm>



However, that being said, there is no attempt here to verify the Buddha Dhamma through science, but the opposite, to verify what science has discovered through the Buddha Dhamma. In many respects, science is far behind the Buddha Dhamma.

At present, we are living in a unique time in history. For the first time, the Buddha Dhamma is beginning to be recognized, and in some cases confirmed by modern science. Since the time of the Buddha, people have had reason to take a position of strong confidence in the Buddha's words, committing their lives to pursuing the truth about the nature of reality. Based not only on this confidence alone, study and practice of the Four Noble Truths reveals them to be true.

Scattered amongst these pages I make a point of noting comparisons and connections between the Buddha Dhamma and certain scientific concepts, and the lack of such regarding the Abrahamic religions. In making this comparison, it was not my intent to group or define the Buddha Dhamma as religion or present it as an alternate form of such. One need not know or understand all the facets of the Buddha Dhamma to realize that what the Buddha taught was the furthest thing from being "religious" in nature, regardless of from which aspect it may be examined.

Compare the characteristic approach of the Buddha to modern scientists, and you will find that there are a lot of similarities. Modern physicists' question everything that cannot be empirically proven. This was the same method employed by the Buddha; questioning everything that he could not empirically test or directly know for himself. He determined that questions of such things with no empirical evidence, were of no importance, particularly with regard to explaining the elements of the human condition. Anything that was assumed, which could not be proven, was of no practical use for the purpose of improving of, or for solving the root conditions of human suffering and death. The modern scientist asks questions and endeavors to discover answers in order to comprehend the physical world, which is no different than the method that the Buddha used.

Buddha's questions focused on the fundamental principles of the human condition that could explain and predict not only human behavior, but the world around him. Much like the Buddha, a modern physicist seeks to reveal the laws that govern phenomenal existence.

From his intuition and method of inquiry, the Buddha dislodged the hidden conditions of the nature of reality, discovering the fundamental elements of cause and effect, that consequentially create the cosmos. Earnest study of the Buddha Dhamma reveals that it is not a religion in the sense of Abrahamic salvific worship. Gotama Buddha was neither a god, a prophet nor a messenger employed to deliver a corpus of do's and don'ts at the behest of a celestial being. Rather, he was an exceptional human being who was able to enumerate the elements of reality by purifying his mind to perfection, allowing him to know the whole of existence, both physical and non-physical. In essence, I contend that the Buddha was the greatest scientist that ever lived. His investigation of the problems plaguing human existence revealed answers and solutions that not only have a profound meaning for humankind, but for the modern study of Quantum Physics. His legacy is that he provided a Path (Four Noble Truths), available to anyone, that would ultimately lead to the same conclusions that he had reached.

Unequivocally, Buddha's teachings contribute to the understanding of the world. Can such be said of the Abrahamic religions? Buddha Dhamma defines, explains and provides logical reasons for the causes relating to the conditions of the World, as-well-as detailed reasons for the conditions that plague humankind, such as death. Can this be said of the Abrahamic religions? Based on these things, can the teachings of the Buddha rightfully be considered religion? Can faith, such as is required for godly approval and membership in an Abrahamic religion, ever provide scientific proof that would lead humankind to a better understanding of existence. Upon honest, unbiased scrutiny, isn't it obvious that the Abrahamic religions are on the wrong side of truth, and today represent a deteriorating faith and an escalating war of ideas pitting humankind one against the other?

*“Faith is nothing more than the license that religious people give one another to believe such propositions when reasons [or evidence] fail. The difference between science and religion is the difference between a willingness to dispassionately consider new evidence and new arguments, and a passionate unwillingness to do so. The distinction could not be more obvious, or more consequential, and yet it is everywhere elided [ignored], even in the ivory tower.”*

— Sam Harris<sup>106</sup>

### **Crazy Ideas**

**“These are deep issues, and we are yet very far from explanations. I would argue that no clear answers will come forward unless the interrelating features of all these worlds are seen to come into play. No one of these issues will be resolved in isolation from the others. I have referred to three worlds and the mysteries that relate them one to another. No doubt there are not really three worlds but one, the true nature of which we do not even glimpse at present.” — Roger Penrose**

An obvious question might be whether or not there can be a relationship, a dialogue, between Buddhism and Quantum Physics. At present, some scientists and philosophers have attempted to do this (Chalmers, Penrose, Seth, Hammeroff, et al). There is a caveat that must be acknowledged, whereby physics, whether there is an awareness of it or not, is imbued with concepts and attitudes inherited from the philosophical traditions of the ancient Greeks.

Throughout the Ages, these philosophical traditions became integrated and blended with various doctrines of the Abrahamic religious traditions. Following from this course of history we then see these amalgamated philosophical traditions being reshaped by Renaissance scientists and philosophers. These intermingled philosophies were passed down to modern times, constituting an almost unrecognizable mixture of ongoing dialogue concerning the nature of cause and effect, space, time, motion, and mass. Whenever physicists attempt to imagine something new, there is a tendency to draw from these traditional philosophies.

If physicists allowed for a shift to a different philosophical model, one in which included the Buddha Dhamma, they might discover a new partnership that may, if nothing else, open the door for a new way of asking or formulating questions. For example, I firmly believe that such an engagement between physics and the Buddha Dhamma would offer a broader perspective when formulating questions about the fundamental issues surrounding the well-known “Measurement Problem.”

What the Buddha Dhamma may provide is a different perspective altering the current object-perspective of atomic structure, specifically with regard to the Copenhagen Interpretation. Quantum Physics focuses on discovering knowledge of how things work. Inclusion of the Buddha Dhamma would set in motion a new perspective of determining exactly what the correct perspective should be. That there is no perfectly objective interpretation or view of the Cosmos, the Buddha made clear. Buddha is not presenting anything that wasn’t posited with the Copenhagen Interpretation. From the Buddha’s perspective, there are no timeless or indispensable material properties and all of existence arises interdependently.

### ***Is There a Harmony Between Buddha Dhamma and Science?***

Our ordinary, common-sense view of existence, the world and even ourselves, is completely different when viewed from the subtle Quantum world. Certainly, at that level, reality is proven to be not as it appears to us conventionally. When the Buddha put the common-sense view (I would change this phrase to “common consensus”) under the lens of intuitive investigation, he discovered the innate emptiness of all things. Is this not the current scientific view of atomic structure, being that it is mostly empty? In the Buddha Dhamma, isn’t Buddha’s explanation of “emptiness” not the same as the Quantum Field? On the Quantum level of reality, matter is barely solid, and certainly less definable than it appears outright. Considering that this was also the Buddha’s conclusion, albeit nearly 2,600 years ago, does this not support the *crazy idea* that modern Quantum Physics is closer to the Buddha Dhamma than is realized?

<sup>106</sup> Sam Harris: *ibid*

Buddha's method of awakening proceeded from observations of material phenomena in relation to the direct experiences of his own human condition. From this standpoint his thought experiments led him to formulate generalizations that forecast certain results determinate on various actions, which are dependent on the interrelation between what is observed and the observer. His method allowed the experiment to be repeated by anyone, thus providing a proof supporting the results, and a pattern of predictability.

Without contradiction of the theory, does not the empirical observation of the efficacy of the Buddha Dhamma infer a priority? Buddha's method of investigation moves between empirical and conceptual thought. The conceptual thought process of the Buddha's investigations employed reason and direct experience, which in turn provided verification and understanding that was supported by such reasoning. Scientists will certainly recognize this as the Scientific Method of research and inquiry.

#### *Emptiness: Is There Such a Thing?*

An important concept taught by the Buddha was that of "emptiness" or *suññata*<sup>107</sup> (*Snskt* sunyata). Buddha's concept of emptiness has been much battered throughout the Ages. However, it is actually quite simple: Everything is empty of some "thing." Materially speaking, regardless of how science observes matter, there is actually nothing that is purely empty. The infinite empty vacuum of space contains immeasurable amounts of energy. Buddha's teachings of emptiness do not concern the material world. *Suññata* is really about recognizing that the material world has no lasting, essential or permanent value. Buddha recognized that there exists a fundamental difference between the manner in which we perceive the world, our existence in it, and the truth about the nature of reality.

Observation, which is what the *Cula-suññata Sutta* is all about (see footnote 101), Buddha sets forth this principle: The manner that a specific proposal is tested should be in harmony with the nature of the subject that is being analyzed.

In this Sutta, if one contemplates something that pertains to the world that is observable or known, taking also into account one's own position with respect to the subject observed, empirical experience determines whether or not a proposal is affirmed. It is this direct experience that the Buddha places at the forefront. Buddha stated:

*"This mode of perception is empty of the perception of 'some-thing.' There is only this non-emptiness: the singleness based on the perception of 'some-thing.' Thus, he regards it as empty of whatever is not there. Whatever remains, he discerns as present. 'There is this,' and so this, his entry into emptiness, accords with actuality [reality], is undistorted in meaning, and is pure."*

Also, in this Sutta, Buddha states that when a proposal relates to a generalization, which is induced by our experience of that which is observed, then it is by intuition and reason that a proposal may be accepted or rejected. Again, if by contrast, the proposal relates to generalizations that are induced from our experience of the world, then it is by reason that the proposal may be accepted or rejected. Here then, the Buddha is proposing that the method of reasoned interpretation is true.

What is important in this Sutta is that the Buddha makes clear that any reasoning or belief in an objective reality, which does not assume an interdependent existence, is unsustainable. What this means specifically is that everything, material, as well as time, mass, and so on, are actually devoid of an objective independent existence, which implies that if such an objective independence were to exist it would be entirely autonomous and self-contained. Science knows that this is not possible, as did the Buddha.

Without question, what the Buddha is stating in this Sutta is the fundamental truth about the nature of reality; the way things actually are. Together the Universe and the human being swim in a sea of interdependently related reality that has no fixed immutable essence, which both are in constant flux. In that matter and time are empty, according to the Buddha, is an intrinsic property of reality because neither of these things possess immutable essences or absolute autonomous independence.

<sup>107</sup> *Suññata*: Cula Sutta-suññata Sutta: <https://www.accesstosight.org/tipitaka/mn/mn.121.than.html>

I believe that the Buddha's teachings offer a greater, perhaps more expansive set of concepts and perspectives, which could be applied to the foundational issues in science, and in particular Quantum Theory, thus enlarging the sandbox, as it were, of possibilities.

*And now, for the rest of the story...supervenience*

In philosophy, supervenience refers to a relation between sets of properties or sets of facts. What is at issue with respect to the mind-body problem is whether mental phenomena do in fact supervene on physical phenomena. And, although supervenience is considered a philosophical topic, could there exist a kind of physical supervenience with regard to consciousness? Specifically, a level of supervenience between what the Buddha taught and Quantum theories of consciousness.

Although this explanation is admittedly ambiguous, perhaps rather than supervenience, the term "emergence" might better be used to describe the system of consciousness and rebirth as described by the Buddha. Emergence generally refers to the appearance of higher-level properties, behaviors, or entities that arise from the collective dynamics of a system's components, where the higher-level phenomena are, in some sense, "more than the sum" of the components or the behavior or properties of the components. Strong emergence refers to phenomena that are, in principle, not derivable from the laws or organizing principles for, or even from, an exhaustive knowledge about their constituents.

According to the Buddha, the existence of a human being is more than the sum of the components that cause the human body, consciousness and mind; namely kammic energy (*kamma bhava*); the elemental energy responsible for rebirth (*gandhabba*), and one's mental characteristics (*gati*), all of which are interdependent yet are separate phenomena. Aside from the complexities of the human organism, consciousness and mind exhibit complex emergent properties. At each level of this complexity, new properties appear. Human life, and in particular consciousness, is a multiscale process evident from lower to higher levels.

Science develops spatial scales in order to understand these levels of emergence. The human state; the human condition, is dependent on the entire scope of interactions between the mental and physical. Emergent properties and processes are understood by Quantum theorists to be unpredictable. However, is it not from recognizable emergent properties that plausible theories are developed? Don't these recognizable emergent properties explain how certain properties emerge from processes, which are reliable within the laws of physics? Could this not also be applied to the Buddha Dhamma?

Is consciousness representative of some sort of fundamental information barrier obscuring reality? This notion is beginning to find acceptance among physicists. Quantum Mechanical theories hold strange concepts about the nature of consciousness and information.

Is the Quantum theory about the physical influences that occur across distances not one such strange concept? And, is this not juxtaposed by the knowledge that there appears to be a limitation of the transfer of simple information via the speed of light?

I posit that all of these theories can be applied to the fundamental elements of the Buddha's teachings regarding rebirth and consciousness, namely kammic energy (*kamma bhava*), *gandhabba* (elemental energy that facilitates rebirth), and *gati* (mental character). Whether or not these elements will ever be physically discovered is doubtful. However, there may be a case for a definition or understanding of strong emergent properties that could explain the causal processes of these elements resulting in consciousness and rebirth.

Has not physics identified several fields that have no known underlying structure, including electromagnetic fields and quantum wavefunction? The interdependence of kammic energy (*kamma bhava*); the subtle elemental energy responsible for rebirth (*gandhabba*), and the mental characteristics of a person (*gati*), are somewhat representative of a system that, at first glance, have no underlying structure. However, the Buddha showed that the underlying structure of this system is dependent on the intentions and subsequent actions of a human being, which by their nature involves both consciousness (*viññāna*) and the physical world.



The electromagnetic field carries both information and energy. Kammic energy (*kamma bhava*), *gandhabba* and *gati*, according to the Buddha, have the same properties, which are predictable.

Why could not human intention (*cetanā*) be compared to the wavefunction, transferring information, creating kammic energy (*kamma bhava*) that becomes fixed into one's kammic profile in the form of an energy property, called by the Buddha a kammic seed (*kamma bija*)? Is this so implausible?

Science confirms the existence of these various fields via matching influences. The charge and spin of electrons are fundamental properties that are receivers, sensing, in a manner of speaking, and attracting electromagnetic fields. Could the properties of *gandhabba* (subtle elemental energy responsible for rebirth) be compared to the electron; attracting a kind of electromagnetic field of kammic energy? It is not so outlandish to consider that *gandhabba* contains similar properties as an electron, mysteriously jumping from one state to another.

Dr. Lal Pinnaduwa states: "Nothing can arise without a cause and without sufficient energy. Any birth can arise only if there is an energy that can sustain that birth." This fact is revealed by the Buddha:

*"If, Ānanda, a kammic energy established in the sensual plane (kāmadhātuvepakkaṇa or kāma dhātuve pakkaṇa) is not entered (nābhavissa), can an existence in a sensual realm (kāma bhava) come about?"*

In other words: If kammic energy (*kamma bhava*), which is established in a human life, is not entered, can the existence of a human life come about? At present, science can only provide *correlations*, but not explanations of consciousness. The real problem is that science doesn't yet have any fundamental law of consciousness. However, I think that there is a lot of evidence that the Buddha did. Science needs to discover the laws that connect consciousness to other consistent fundamentals that have been proven to exist, such as space, time, mass, motion, and so on.

The now famous and persistent paradox is known as the so-called "observer effect" asks: Does a conscious observer need to observe in order to collapse the wave? Does observation actually collapse the wave function or merely interrupt it? The paradox is by what means can we know the answer without an observer? As Roger Penrose stated: *"It is hard to see how one could begin to develop a quantum-theoretical description of brain action when one might well have to regard the brain as "observing itself" all the time!"* So then, does this mean that time is a factor?

Consciousness appears to have the same characteristics as time. Time is dependent on motion and is not attached to anything, but seems dependent on motion. There is no universal time. But, it is within time that we reflect on our thoughts, which indicates that there is consciousness there. In order to reflect on our thoughts, there must be awareness of both our thoughts and the action of reflection. Without either, understanding cannot develop, yet in order to achieve understanding there must be awareness—there must be consciousness.

**I think I am intrigued by paradoxes. If something seems to be a paradox, it has something deeper, something worth exploring. If consciousness is not a computational process, what could it be?"**

**– Roger Penrose**

Another paradox is that we cannot take the subject out of the object. Theoretical Physicists view consciousness and the subject of consciousness as distinct from one another. Manifestation requires both consciousness and subject as a singular emergent "thing." Science cannot remove the subject from the object. Without a right there is no left. In this sense, it would appear that reality cannot be separate from consciousness.

Quantum mechanics, the physics of biology and chemistry has, at present, limitations. Such a limitation is evident in the question of how wave functions collapse. "We need something that explains the collapse of the wave function (Penrose)." Of all the theoretical concepts that have been developed, physicists are very well aware that something is missing. Is this missing "thing" consciousness? Is consciousness a yet undiscovered elemental field? It does not appear at present that we can quantize consciousness.

If the Buddha's teachings were given serious consideration by Theoretical Physicists, whether this might lead them to formulate, at the very least, better questions. Additionally, physicists may discover that comparing what is already understood of Quantum Mechanics with the Buddha Dhamma, may provide a foundation for the examination of topics such as consciousness from a quantum perspective, if even only theoretically. I challenge scientists to consider the following questions:

1. Quantum entanglement states that there is the ability for two spatially separate entangled particles to respond to each other instantaneously. [This theory has recently been challenged by experimental data, specifically that an infinitesimally small delay may exist.<sup>108</sup>] The question is not **whether** rebirth or consciousness, and their constituent parts, fit into the theory of Quantum Entanglement, but **how** it does. **Therefore, why wouldn't rebirth fit into the Quantum notion of Entanglement?**

2. Let's postulate that the Buddha Dhamma explains, in its fashion, the true nature of reality. Let's also assume that the Buddha was correct in his statement that consciousness is something that the human being becomes connected to at a specific time, given certain circumstances encompassing both the physical and mental. Let us further assume that the Buddha spoke correctly when he describes the nature of reality as *anatta*, meaning that there is nothing substantial in the world. **How could Quantum Physics prove that these things are NOT true?**

3. Einstein, Podolsky, and Rosen published a paper in 1935, which showed that if quantum mechanics is correct, a particle somehow knows what another particle, separated by a large distance, is doing. Einstein dismissed the prediction. However, his theories led to quantum mechanics.

Physicist John Bell then proposed an experiment to test this concept in 1964, which became known as the "Violation of Bell's Inequality." These experimenters in fact created the very entangled particles that Einstein said were impossible. This is now known as a "shared wave function." In 1997, Nicholas Gisin<sup>109</sup> conducted the first experiment with entangled photons. Each photon was sent seven miles apart through optical fibers. Reaching the ends of these fibers, the two photons were forced to make random choices between alternative, equally possible pathways. In no way was there any physical manner in which the photons were able to communicate with each other. However, when the paths of the two photons were adjusted correctly and the results compared, the independent decisions by the paired photons always matched. The responses appeared to be instantaneous, even though the two events were separated by about 26 milliseconds at the speed of light.

Very recently (2021), Sergey Mayburov<sup>110</sup>, of the Lebedev Institute of Physics in Moscow, uncovered a pattern in photons being generated by cells, giving credibility to the theory that some cells use biophotons to communicate. Now, given the information that the Buddha provided about the cause for rebirth, I am inclined to believe the possibility that the life of a photon is entangled to its source, which may also be true of the *gandhabba*. Might it also not be possible that a photon is also entangled to the destination? Conceptually, although there is no way to prove this, might this not fit the property and process of the *gandhabba*? Given that the nature of the *gandhabba*, according to the Buddha, is an infinitesimally small amount of energy matter, it may be true that, like a pair of photons, the *gandhabba* is both entangled with the source (the dead body) and the destination (the new life), even if only for an infinitesimally small amount of time.<sup>111</sup>

<sup>108</sup> Delayed Time Zero: [https://www.mpq.mpg.de/4857927/10\\_06\\_25](https://www.mpq.mpg.de/4857927/10_06_25) | "Time-bin entangled photons from a quantum dot" : <https://www.nature.com/articles/ncomms5251> | "Quantum Experiment Shows How Time 'Emerges' from Entanglement": <https://medium.com/the-physics-arxiv-blog/quantum-experiment-shows-how-time-emerges-from-entanglement-d5d3dc850933>

<sup>109</sup> Nicholas Gisin, et al, *Entangling independent photons by time measurement* <https://www.nature.com/articles/nphys700> | [https://www.researchgate.net/publication/2215189\\_Entangling\\_Independent\\_Photons\\_by\\_Time\\_Measurement](https://www.researchgate.net/publication/2215189_Entangling_Independent_Photons_by_Time_Measurement)

<sup>110</sup> Sergey Mayburov, *Coherent and Noncoherent Photonic Communications in Biological Systems* [https://www.researchgate.net/publication/45872625\\_Coherent\\_and\\_Noncoherent\\_Photonic\\_Communications\\_in\\_Biological\\_Systems](https://www.researchgate.net/publication/45872625_Coherent_and_Noncoherent_Photonic_Communications_in_Biological_Systems)

<sup>111</sup> Research suggests cells communicate via biophotons: <https://phys.org/news/2012-05-cells-biophotons.html>

**That certain aspects of the nature of human mind, intuition and thought, causes physical effects, why wouldn't this be the same as the Quantum event of entanglement with regard to rebirth or consciousness?**

4. Given the Buddha's clear explanations of the relationships between the actions of a person (*kamma*), intentions (*cetanā*), consciousness (*viññāṇa*), a person's mental characteristics (*gati*), as well as the energy (*gandhabba*) needed to facilitate rebirth (*jāti*), the question I put forth to physicists is:

**How can physics disprove that any of these elements exist and are not representative of the Quantum world itself?**

Gotama Buddha, on many occasions, admitted that the things that he taught were not of his own invention. He insisted that the things he taught were a re-discovery of knowledge once known and understood at a time of great antiquity in a distant era<sup>112</sup>. Over time, this knowledge, which was taught by all the great Buddha's preceding him, had faded into obscurity. He insisted that his teachings were a simple exposition of nature as it actually is, and that the path to understanding and knowledge is woven into the very fabric of existence.

It is significant that the Buddha never stated that the Four Noble Truths were of his own creation. Rather, he stated that he was the first in the current era to have realized the truth of them, thus opening his understanding of the truth about the nature of reality. His teachings, his Dhamma, clarified and explained the fundamental principles that govern the entire cosmos; knowledge which was known before his time.

The Buddha Dhamma not only provides a way in which we can label and understand the world. His explanations were made in direct connection to a method that he prescribed as a pathway, not only toward understanding, but a way in which humankind could escape the stranglehold of ignorance that leads to suffering and death.

Applied to the current knowledge and theories of Quantum Mechanics, perhaps Quantum physicists are stuck in a kind of ignorance; the same sort of limiting ignorance effecting those who claim membership in the Abrahamic religions. In essence, the Buddha Dhamma teaches that there are alternatives to such limitations. However, one cannot benefit from the Four Noble Truths by intellect alone.

While Quantum physicists can envision a form of reality through theories, true understanding can only come from applying the Buddha Dhamma to such theories. Then and only then, will the actual truth about the nature of reality become liberated from ignorance.

In 2014, at a T.E.D. conference, philosopher David Chalmers made a few important observations, presenting them as "crazy ideas."

*"The first crazy idea is that consciousness is fundamental. Physicists sometimes take some aspects of the Universe as fundamental building blocks; space, time, and motion. They postulate fundamental laws governing them, like the laws of gravity or of Quantum Mechanics.*

*The fundamental laws aren't explained in terms of anything more basic. Rather, they are taken as primitive, and you build up the world from there. Sometimes the list of fundamentals expands. In the 19<sup>th</sup> Century, Maxwell figured out that you can't explain electromagnetic phenomena in terms of the existing fundamentals; space, time, mass, Newton's laws. So, he postulated fundamental laws of electromagnetism and postulated electric charge as a fundamental element that those laws govern.*

*I think that's the situation we're in with consciousness. If you can't explain consciousness in terms of the existing fundamentals; space, time, mass, charge; then, as a matter of logic, you need to expand the list. The natural thing to do is to postulate consciousness itself as something fundamental; a fundamental building block of nature. We need to study the fundamental laws governing consciousness; the laws that connect consciousness to other fundamentals; space, time, mass and physical processes."*

I postulate that what is needed is a new list of words that describe the fundamental laws of consciousness. Where better to look than the one scientist who created the language and avenue for understanding these things: the Buddha.

<sup>112</sup> Samyutta Nikaya 12.65

I agree with Chalmers' "crazy idea." I also believe that physicists are showing signs of leaning toward the same thinking as Chalmers. But, I believe that, as a starting point, reviewing current fundamental laws that might govern consciousness would only confound and limit the discussion. Why compound and already difficult problem? A new starting point is needed.

Rather, physicists need not put themselves through the rigors of trying to agree on where to begin; what to include or what information is relevant or not. Throughout this paper the labels and language necessary to understand *what* the specific laws governing consciousness are, has been known for millennia. For the physicist, and perhaps the philosopher, all that is required is to learn the language of the Buddha Dhamma and then connect-the-dots. The answers to all of the questions regarding the fundamental laws of consciousness, death and rebirth are right there.

Therefore, there is no necessity for an "extended list," as Chalmers intimates. However, as Maxwell discovered, there are limitations to existing fundamental laws, physicists are well aware of the limitations of the application of current fundamental laws with respect to consciousness. This is a part of the "hard problem of consciousness."

To anyone who is not a physicist, the language of the physicist is daunting and confusing. I am sure that the language of the Buddha Dhamma is equally daunting and confusing to the physicist. However, physicists have available to them some 2,500 years of expository discussions concerning the fundamentals of the Buddha's teachings with regard to consciousness, the purpose and true cause of death, and the cyclical cause of rebirth.

At the start of this paper a lot of science was reviewed, which may have confused readers initially: What did any of it have to do with the teachings of the Buddha? Most people, who are untrained in the higher sciences, never notice or are completely unaware of the science behind our current world. It is clear that the building blocks of nature are extremely small, imperceptible and invisible without massive magnification. Yet, despite this, we take for granted these things, having developed a certain confidence in these things that the majority of humans cannot see.

It is unfortunate indeed that the original and basic teachings of the Buddha suffer not only from modern-day consensus and political labeling, but other so-called authentic branches of *Buddha-ism* have adopted things that the Buddha never taught. Otherwise, anyone who seriously studies the basic teachings; the core teachings of the Buddha, one soon comes to develop the perspective that what the world calls *Buddha-ism* is the furthest thing from the consensus of what a religion is. Rather, one begins to understand that the teachings, although seeming philosophical in nature, deal with the raw truths of the nature of existence, and most intentionally focus on the human condition. The message of the Buddha is clear, there are no celestial beings or gods that will or can come to the aid of human beings with respect to any form of saving one from the human condition. We are all on our own. We alone have the responsibility of saving ourselves from the vagaries of the human condition and death.

Buddha also taught that the core cause of all human woes resides in our actions, beliefs and opinions. Of all of the characteristics that cause human beings to suffer and die is ignorance of the truth about the nature of reality. And, while many of his teachings seem mundane, simple and almost uninteresting, when one is courageous enough to embark on practicing them, discovers that the simple things are the most difficult to achieve. This difficulty arises because we inevitably encounter our desire to remain attached to the thing in life that we desire. If one is lucky or determined enough, there comes a realization of the power their attachments have over them.

Of all of the things that one can be attached to, the strongest are beliefs and opinions that most people cannot defend with any real proof. Many people cling to beliefs and opinions that are merely borrowed or adopted from unprovable sources, such as family culture, social culture, cultural traditions, political traditions, religious traditions and so on. Most of what is believed and defended amounts to mere hearsay; no proof can be found. Ultimately, this is the case with all of the Abrahamic religions, and some sects of *Buddha-ism*.



No other philosophy or teaching, particularly within the various World religions, gets to the core of explaining, let alone offering a resolution for the issues surrounding the human condition as does the teachings of the Buddha. And, although to the uninformed, some of the teachings involve things that cannot possibly be seen by the naked eye, evidence abounds for the existence of, to name a few: the *gandhabba*, *kamma*, and rebirth.

I believe the key that is needed for physicists and perhaps philosophers to seriously consider what the Buddha had to say about things like consciousness and rebirth, is to set aside any notions of religiosity and preconceived ideas that what the Buddha taught constitutes religion. Looking at the Buddha's teachings with a view devoid of consensus-based preconceptions will open new ideas and possibilities toward understanding the nature of mind, consciousness, death and rebirth. I believe that this will provide new vistas for scientific discoveries and broaden scientist's abilities to truly understand the nature of reality. Knowledge is one thing; proofs are one thing, but understanding the why is paramount.

In all of the foregoing discussion, is it not obvious that the Buddha Dhamma never construes anything inferring "religion." People invent religion. In his teachings, the Buddha never once intimated or indicated that what he was teaching was a religion, even in light of the existing Brahmin religion of his time. People have created Buddha-*ism*, and look to the Buddha as a form of a personality cult because he spoke of ideas that changed the world. Perhaps then, given all the possible information available, what has been presented here may qualify for the application of the philosophy of Occam's Razor.



## Glossary of Pali Words used in this Paper

### A.

**Adhammā:** 1. Misconduct; 2. False teaching. 3. Adhammā bears the fruit of bad kamma and dhammā bears the fruit of good kamma. 4. False, unjust etc.; evil practice.

**Adōsa:** Absence of ill-will, adj. kind, friendly, sympathetic.

**Akusala:** (adj) not good, not right; evil, harmful, not conducing to well-being; evil, acting wrongly (nominative, masc.) what is bad or evil; wrong or unsuitable action or behavior; what leads to suffering or is harmful, (adj) not good at, incompetent; not skilled, not expert; not knowledgeable about or conversant with.

**Alōbha:** Disinterestedness; non-greed; non-covetous.

**Amōha:** (adj) Not dull. As n. absence of stupidity or delusion; absence of bewilderment. The form amogha occurs at Ja.vi.26 in the meaning of “efficacious, auspicious.”

**Anatta:** (neg prefix ana + atta) Atta (not attā): The self, the soul, as a permanent, unchangeable, autonomous entity (always rejected by the Pāḷi Buddhist texts as not corresponding to any reality), the self, one’s own self (the abstract individual); the image in a looking-glass; especially oneself, himself, yourself, (used (in the singular as reflexive pronoun for all three persons and genders); instrumental attanā, by oneself; in oneself, as for oneself, often used in the sense of a nominative. Therefore: Ana+atta: (masc) the negation of self, soul; not the self, not a soul. Anattā: (Long “a”) Not “a” self, not “a” soul. Conventionally attā refers to a “person.”

**Anicca:** An=negative, Icca=craving/desires, nicca=That which is constant, continuous, permanent; (neg prefix ana, an + icca) Anicca: perception that desires (*icchā*) for “stability of long-lasting happiness” can be achieved is nicca. Anicca is the negation of that which is constant, continuous, permanent; not stable; impermanent; the perception that nothing is constant, continuous or permanent.

**Anusaya:** (masc) (latent) disposition, tendency, propensity, inherence; bent, bias, proclivity, the persistence of a dormant or latent disposition, predisposition, tendency. Always in bad sense. In the oldest texts the word usually occurs absolutely, without mention of the cause or direction of the bias. Deep mental fermentations. Deep seated cravings (*āsava*) and characteristics (*gati*) that lay hidden.

**Arammana:** (neuter) Primary meaning: “foundation,” from this applied in the following senses: 1) support, help, footing, expedient, anything to be depended upon as a means of achieving what is desired, i.e. basis of operation, ground, cause, means esp. a cause of desire or clinging to life, pl. -ā causes of rebirth. 2) Sense objects. A basis for the working of the mind and intellect; i.e. sense-object, object of thought or consciousness, the outward constituent in the relation of subject & object, object in general. 3) (adj.) Being supported by, depending on, centered in, concentrated upon. *Ārammaṇa*: the focus of the mind at a given moment. Plays an equally important role as *gati/anusaya* in response to a sensory stimulus. Example: when looking at something, that object is the *ārammaṇa*. When hearing a sound, that sound is the *ārammaṇa*.

**Āsava:** (masc, neuter) That which is inflowing; influence (the concerns, attitudes, predispositions, listed as *kāma*, *bhava*, *avijjā*, and sometimes, *ditthi*, which form an obstacle to the realization of the truth of an affliction, pain; in themselves and through the actions they motivate, bring about further existence; the ending or destruction of *āsava* is arahatship. Ideas which intoxicate (pollute/taint/stain) the mind. The four *āsavas* are *kāma*, *bhava*, *ditthi*, *avijjā*, i.e. sensuality, lust of life (rebirth), speculation, doubt, ignorance.

**Avijjā:** (fem) Ignorance; the main root of all dissatisfaction, suffering, and continual rebirth. Specifically, ignorance of the meaning of the Four Noble Truths. Being in the dark about the true nature of reality. Ignorance of the true nature of existence and the World *anicca*.

**Bhava:** (masc.) A state of existence; the state of existing; becoming, (form of) rebirth, (state of) existence, viz “a” life. Energy of becoming; kammic energy, energy behind becoming, behind the cause of existence. Closely related to *punnabhava*. Three major types: *kāma bhava*, *rūpa bhava*, and *arūpa bhava*.

**B.**

**Bhāvanā:** (neut.) becoming; a dwelling place (in the mind); dwelling on, mental sphere, mental world, mental realm; producing, dwelling on something, putting one's thoughts to, application, developing by means of thought or "meditation," cultivation by mind, culturing.

Meditation: viz Samatha Bhavana, Vipassana Bhavana: See <https://puredhamma.net/bhavana-meditation/>

**Bija:** (neuter) seed; germ; generating element; kamma bija are seeds that exist in our kamma or kammic profile.

**Buddha Dhamma:** "Pubbe ananussetu dhammesu." "A theory of nature (dhamma) that is not known to the world before a Buddha comes along." [Dhammacakkappavattana Sutta] Teachings of the Buddha. (See also: <https://puredhamma.net/dhamma/what-is-buddha-dhamma/>)

**Buddha:** (masc.) one who has attained enlightenment; the Enlightened One; one who is awakened. Bhagavā; Tathāgata; Siddhattha; Gotama; Sugata; Satthā. The Awakened one, the founder and teacher of the Buddha-dhamma. His personal name was Siddhattha Gotama, and he was a Khattiya of the Sakiyan clan. He was born in Lumbini in around 500 BCE. He was raised in Kapilavatthu, where he had a wife and child, but left home in search of the Deathless at the age of 29. After six years of fruitless effort he realized Awakening at the age of 35 at Bodhgaya, at Uruvelā on the banks of the Nerañjarā river. After an initial hesitation he decided to teach the Dhamma he had found, and he did so for the next 45 years, until he passed away at the age of eighty at Kusinārā. A Buddha is not a deity, but a person who has reached the pinnacle of wisdom and freedom. From time to time Buddha's appear in the world, but Siddhattha is the only historical Buddha of our age (Buddha Sāsana).

**C.**

**Cakkhu:** (neuter) the eye; the organ of sight; the faculty of seeing, insight, knowledge, understanding; the eye of the world (as the means of a person's seeing); power of seeing; vision; (perhaps: light); the organ of sight viz "the eye."

**Cetanā:** (fem.) intention; volition; state of ceto (thinking/thoughts/mind) in action, thinking as active thought, intention, purpose, will as action.

**Citta:** Thoughts; *the center and focus of a person's emotional nature* as well as that intellectual element which inheres in, and accompanies its manifestations; i.e. thought. In this wise citta denotes both the agent and that which is enacted. The meaning of citta is best understood when explaining it by expressions familiar to us, as: with all my heart, heart and soul; I have no heart to do it; singleness of heart; all of which emphasize the emotional and conative side or "thought" more than its mental and rational side. Citta may therefore be rendered by intention, impulse, design; mood, disposition state of mind, reaction to impressions, viz "heart-broken [khinnacitta]." Citta is the smallest thought "moment." Thoughts are comprised of many citta.

**Citta vithi:** Series of thoughts; many thoughts in a moment; a single citta does not arise in isolation, citta always arise in a citta vithi (series of cittā). Billions of citta vithi flow through a mind in a second. What we "feel" is the cumulative effect of billions of such citta vithi.

When exposed to a new ārammaṇa (sensory input), the first series of citta vithi arises without awareness [thus the importance of mindfulness].

**Cuti:** (fem.); moving, falling from one existence (to another); death; cessation; vanishing, passing away, decease, shifting out of existence.

**Cuti Paṭisandhi:** Cuti (fem.); moving, falling from one existence (to another); death; cessation; vanishing, passing away, decease, shifting out of existence; Paṭisandhi; rebirth; conception; reunion; reunion (of vital principle with a body); in relation to citta; *Paṭisandhi citta* is experienced in the next very *citta* (thoughts) after the *cuti citta* of the old life in the last *citta vithi* of the dying person. Paṭi is to "bind" and "sandhi" is a "joint." Paṭisandhi therefore, means joining a new life at the end of the previous. Transitioning from one existence and binding/joining to another.

**D.**

**Dhammā:** "To bear"; one bears what one likes and what one engages in. Not to be confused with dhamma (without the long ā at the end) as in Buddha Dhamma. Example of difference: "Truth (Dhamma), O king, is the most minute and subtle. But this is not true of all qualities (Dhammā) [Mil. 3.7.14]. Dhammā (with a long "a" at the end) is used to indicate energy created by the mind, also called a kamma bija.

**Dhamma:** Several meanings depending on contextual usage. “Buddha Dhamma,” it means the “Buddha’s teachings. (see Dhammā above); (masc. & neuter) how the world of experience works, the processes by which it works and is explained (especially as formulated in Paṭicca Samuppāda), and possibility of transcending the world as understood by the Buddha and taught by him (so that knowledge and understanding of it might bring awakening); the (stages to) freedom from the world of experience, culminating in Nibbāna; (singular) the behavior, conduct, practice required to realize and understand the way the world of experience works; (plural) a quality or element of behavior or practice according to the Buddha’s dhamma; a constituent of prescribed practice; an element of the teaching; a doctrine; appropriate and beneficial practice; Dhamma (continued)...the substance of the teaching of the Buddha; the teaching as collected in the canon; the texts; a constituent of experience; an aspect or quality of existence; physical sensation; a mental state or quality (good or bad); thing, phenomenon, matter; the non-independent, conditioned constituents of processes and events, progressively more and more minutely analyzed into fundamental types of event or fundamental regularities; mental constructs, concepts, ideas, what is to be cognized by the mind, that which is the object of mental activity; an interpretation of reality of other religious teachers or philosophers; a doctrine not taught by the Buddha; a theory the way things are; a natural law, custom, tradition; the essential nature, the way, of men or animals.

**Dōsa:** anger, ill-will evil intention, wickedness, corruption, malice, hatred; freq. combination of either rāga (lust), mōha; (delusion), or lōbha (greed); aversion, aggression, destructive intent; adj.) bearing anger, intending evil in one's thoughts. In relation to lōbha;

Synonyms for dōsa:

angry	anger	annoyed	exasperated	infuriated	aggravated	provoked	irritated
aggressive	violent	hostile	destructive	incensed	antagonistic	hostile	intimidating
unreceptive	ignoring	petty	oppositional	unfriendly	ill-disposed	uncompassionate	incompatible
trivial	impertinent	enraged	insulting	offensive	abusive	rude	insolent
impolite	impudent	crass	discourteous	coarse	churlish	disrespectful	ill-mannered
negative	critical	stern	disparaging	snubbing	slighting	disapproving	judgmental
cutting	acerbic	unkind	wounding	caustic	shun	cold-shoulder	ostracize

**Diṭṭhi:** (fem) view, belief, dogma, theory, speculation, esp. false theory, groundless or unfounded; opinion, belief, dogma, theory, speculation, esp. false theory, groundless or unfounded opinion; sight (perception), view, the eye; religious belief, doctrine ; false doctrine , heresy characterized by sammā diṭṭhi right doctrine, right philosophy and micchā diṭṭhi wrong theory, false doctrine.

**Duggati:** (fem.) a wretched (re)-birth or state of existence; an ill destiny; misfortune, poverty; a miserable existence; Distress, suffering, misery; in relation to du + gati=bad characteristics determine bad destination (results); du= antithetic prefix implying badness, perverseness, and difficulty. In relation to gati: One’s habits, character. See gati.

**Dukkha:** (adj. & neuter) (adj.) dis-ease, fraught with pain, entailing sorrow or trouble, causing misery, painful; unpleasant; bringing pain or distress; uneasy, uncomfortable; not what one wants; wrong (used to characterize all experience) unsatisfactory; bringing distress or trouble (neuter) pain, distress, trouble (as a term characterizing all experience; its ending is Nibbāna), distress, trouble. Translators are forced, therefore, in translation to use half synonyms, no one of which is exact. Dukkha is equally mental & physical. Pain is too predominantly physical, sorrow too exclusively mental, but in some connections, they have to be used in default of any more exact rendering. Discomfort, suffering, ill, and trouble can occasionally be used in certain connections Misery, distress, agony, affliction and woe are never right. See: <https://suttacentral.net/define/dukkha>.

## G.

**Gandha:** (masc. & neuter) odor; smell; scent; smell as olfactory sensation, belonging to the sphere (āyatanāni) of sense-impressions and sensory objects; In relation to gandhabba from “gandha” + “abba” or “taking in aroma or scents, becoming dense; abba: “taking in.”

**Gandhabba:** (masc.) represents a being ready to take a new existence; an expression for that impulse or entity which takes re-birth.



**Gati:** (fem.) 1. going; moving; gait; progress, movement; progress in knowledge/understanding; 2. where one goes or has gone; path; way, course; method; 3. where one goes/moves; one's sphere; 4. where one goes to; one's destination; a refuge; a recourse; 5. where one goes in life; destiny; career; outcome; issue; 6. where one goes after death; a future course; a state of existence; one's habits, characteristics according to where one goes/moves/acts.

## H.

**Hadaya:**

**Hadaya Vathu:** seat of mind (in the gandhabbaya); From hadaya, meaning "heart" in mental/psychological, emotion; "heart-basis," the heart as basis of mind; From vathu, object; a thing; a substance; (general philosophical term); reason, ground AN.ii.158; Ja.ii.5 (avattumhi chandaṃ mākaṃ *viz* "Do not set your heart on what is unreasonable." Where citta (thoughts) arise; appropriate to call it the mind or even more appropriately "seat of the mind".

## I.

**Icca** (*lit. iccha*) (*adj.*): wishing; longing; desirous of; desire; wish; will; lust; covetousness.

## J.

**Jāti:** (fem.) birth, being born; the possibility of being (re-) born; a birth; an existence; type of birth; kind; species  
natural or true state, nature; true, genuine; naturally, by nature; birth/rebirth.

**Jivhā:** (fem.) the tongue; the organ of taste.

**Kalpa** (Vedic): Pali kappa: (masc. neuter & masculine) (m. neuter) an aeon, a cycle of the world's evolution and dissolution; one stage of a cycle; a very long period of time.

## K.

**Kamā:** pleasure; lust; enjoyment; an object of sexual enjoyment; thoughts about and planning to enjoy more sensual pleasures. Related meaning: "giving priority to mind-made pleasures." "Kāma" from "kā" meaning "eat or destroy" and "ama" refers to Nibbāna; desire to enjoy more sensory experiences is kāma. An object is not kāma, rather the attachment to a sensory experience, keeping the desire fresh in one's mind.

**Kamma:** (neuter) act, deed, action or actions of moral import (producing for the agent an inevitable result or consequence in the same or another life; the action appears to exist in some sense until the effect is completed).

**Kamma bhava:** Whatever we do with body, speech, and mind, a "record" (nama gotta) gets established in the kamma bhava; Bhava= "bha" meaning "appear(ing) and becomes established;" thus, the act we did, i.e. kamma, gets recorded in the kamma bhava exactly the same way it happened. Kamma bhava is like our personal kammic profile. (*viz* nama gotta are permanent); kamma bija are located in the kamma bhava (kammic profile).

**Kamma bija:** actions that create seeds related to one's kamma bhava (kammic profile); kamma bija can be either positive seeds or negative seeds that will influence future existences (lives).

**Kamma viññāṇa:** Viññāṇa: (neuter) animation; consciousness; a mental quality as a constituent of individuality, the bearer of (individual) life, life-force (as extending also over rebirths), principle of conscious life, general consciousness (as function of mind and matter), regenerative force animation; transforming (according to individual kamma) one individual life (after death) into the next; When we see something, a cakkhu (eye consciousness) viññāṇa arises. A split second later we may hear something, and sōta (ear consciousness) viññāṇa arises. "In this (fundamental) application it may be characterized as the sensory and perceptive activity commonly expressed by "mind." Kamma: see kamma above); preceded by kamma vipākā (see below). Arises when there is attachment to a vipākā viññāṇa (see below) via greed, hate, or ignorance.

**Kamma vipāka:** The outcome or consequences of a kammic seed (kamma bija); the word/label used to identify an action done in the past that created a kamma bija (kammic seed). Two possible outcomes of kamma vipāka: 1) Leads to consequences during a present or future lifetime called “pavutti kamma bhava.” 2. Very strong kamma vipāka gives rise to a new existence at the time of rebirth, which is called “uppatthi kamma bhava.”

**Kāya:** Not to be confused with kaya (kay-yah). Kāya, with a long “ā” refers to the body, the physical body; sometimes the material form (of a particular existence) as opposed to the mental faculties, sometimes the assemblage of all five khandhas. The body is the ‘experiencer’ of sensation and feeling, either (a) generally (physically and/or mentally); or (b) specifically, as one of the organs of sense or perception the performer of action. For example: Manomaya Kāya specifically refers to the ‘mental body.’ In this usage, kāya represents a collection of things, such as when reference is made to a pond or lake such is referred to as a ‘body of water.’

**Khandha:** a group or collection of things lit. ‘heap.’ The agglomeration or groups of good practices or virtues the five collections or groups which are the elements of (personal) existence. Sensorial aggregates which condition the appearance of life in any form; sensorial aggregates which condition the appearance of life in any form.

**Khāra:** (also sañ-khā, sañ-khyā, san- khāra) enumeration; adding to or subtracting from.; removal from.

**Khyā:** see Khāra above

**Kusala:** (adj. & neuter) (adj.) good; right, proper; meritorious; conducing to well-being; good, acting rightly; (neuter) what is good; what leads to well-being; right or proper action or behavior; virtue; (adj.) good at; competent, clever; skillful, skilled, expert; knowledgeable (about), conversant (with, genitive or locative); (neuter) welfare; well-being.

## L.

**Lōbha:** greed; things belonging to greed; forming the three principles of failing, shortcoming, fault, deficiency, limitation, inadequacy; covetousness, avaricious, materialistic; grasping.

## M.

**Mano:** mentality (*Bodhi*), represents the intellectual functioning of consciousness, differing from viññāṇa, which represents the field of sense and sense-reaction (“perception”), and citta the subjective aspect of consciousness.

**Miccha:** wrongly, in a wrong way, wrong; false; untruth; falsehood; false; wrong; counterfeit; erroneous. *Related to iccha; wishing, longing, desirous of.* Desirous of wrong things, i.e. thinking, concepts, ideas; desirous of believing something that is false.

**Miccha Ditthi:** “belief in/of” wrong theory, false doctrine; (see **Diṭṭhi**); one of the ten immoral actions or dasa akusala.

**Mōha:** stupidity; delusion; dullness of mind or spirit, bewilderment, infatuation. Similar to avijjā and almost always together. Mōha derives from two Pali words, “muva” + “hā,” which symbolizes a vessel with its mouth closed. Thus, one cannot see what is inside the vessel. Similarly, one acts with mōha due to ignorance of the consequences. Ignorance blocks one’s thinking so as to be ineffective and unable to see (comprehend or understand) clearly.

**Mohacarita:** (*adj*) of foolish habits.

## N.

**Nama:** name, label.

**Nāmarupa:** the “name” or “label” of a rupa, which is a form, figure, appearance, or principle of form. Names of rupa may include vēdanā, saññā, sañkhāra, viññāṇa.

**Nimitta:** (*masc.*) (*neuter*) (*context dependent*) a sign or mark by which something or someone is recognized or identified or known or defined; a distinguishing mark or appearance; a perceived (enduring) attribute, predicate (especially that of permanence); an attribution; the organ of generation (of either sex), the pudenda; an object or appearance or happening which is significant, which expresses more than itself; a sign, a significant appearance; an omen, a portent; an indication, a hint; what one notes or marks; an object of thought or meditation or concentration; an image; an internal appearance or total awareness; a mental impression (appearing as an early stage of *jhāna*, a sign of progress) a ground, a cause, a reason.

## P.

**Paccayā:** conditions; *lit.* resting on, falling back on, foundation; cause, motive; (*lit.*) support, requisite, means; reason, cause, ground, motive, condition. Paccayā is connected with cause and effect: a condition must be present for causes to bring about corresponding effects.

**Pañña:** of wisdom, endowed with knowledge or insight, possessed of the highest cognition.

**Pasāda rūpa** (*rūpa: material forms*): clearness; brightness; joy; confidence; the faculty of senses; joy, satisfaction, happy or good mind virtue; repose, composure, allayment serenity;

**Pati:** prefix with many meanings depending on context; *generally reflexive* as in “bound,” “together” *with*; bonding together *with*.

**Paṭicca:** *pati-icca* grounded on, on account of, concerning, because of; by means of; on account of; concerning; following from anything as a necessary result; by reason of; through. *Pati-icca* (*see iccha*): *Desires, wishes bound together whether beneficial or not; good or bad.*

**Paṭicca Samuppāda:** (*Phrase*) *Patika* (*see above*); *Dependent Origination*; conditioned co-production; causal conditioning; causal genesis; conditioned genesis; causal dependencies. *Pati* (bonding *with*) + *icca* = liking; *Sama* (*same/similar*) + *uppāda* (*generation/generating*); (*adj*) even; equal; level; similar; like, the same. *Uppāda*; (*masc.*) coming into being; coming into existence, appearance, generating birth to. “Deep, indeed, *ānanda*, is this *paṭicca-samuppāda*, and deep does it appear. It is through not understanding, though not penetrating this doctrine, that these beings have become entangled like a matted ball of thread, become like *muñja* grass and rushes, unable to pass beyond the woeful states of existence and *saṃsāra*, the cycle of existence [Mahānidāna Sutta, DN 15]. It is through *Paṭicca-samuppāda*, its order of arising, which manifests the process of the Four Noble Truths; of becoming (*bhava*), the appearance of suffering (*dukkha*, the first truth); and how this process of becoming or suffering is conditioned (*dukkha-samudaya*, the second truth). In its order of ceasing the *paṭicca-samuppāda* makes plain the cessation of this becoming, this suffering (*dukkha-nirodha*, the third truth), and how it ceases (*dukkha-nirodha-gāmini paṭipadā*, the fourth truth).

**Paṭisandhi** (*pati-sandhi*): “*paṭi*” is to “bind” and “*sandhi*” is a “joint;” refers to joining a new life at the end of the old. Happens at last moment after the last *citta* (thought) of the current *bhava* (existence). Referring to rebirth; conception; reunion of *gandhabba* to a body. Entering the womb in a new existence, conception, re-birth. *Paṭi*: in return, in exchange; again, a second time; back to. *Sandhi*: union; junction; joint; connection; agreement; joint, piece, link; connection, combination. [Ref: <https://puredhamma.net/abhidhamma/gandhabbaya-manomaya-kaya/cuti-patisandhi-an-abhidhamma-description/>]

**Paṭisandhi citta:** (*phrase*) Inextricably linked with *gati*, *bhava*, *cuti-paṭisandhi*, *citta vithi*, *et al.* Whereas *paṭisandhi* means to bind and join, here means to bind and join thoughts (*citta-mind & thought*). Not to be confused with *cuti citta*.

**Phassa:** touch; contact; as sense or sense-impression. Fundamental fact in a sense impression consisting of a combination of the sense, the object, and perception.

**Pubbangama:** (*pubba* + *gama*) *Pubba* (*adj.*): *previous, former, before; having been before; precedes; preceding; going ahead.* *°gama* (*adj.*): *going, able to go; going to, leading to; in vihan-gama “going in the air. Añga* (*neuter & masc.*): *a constituent part; component part of; a part of the body; a limb, member; an integral part of anything; a constituent part of a whole, a subordinate division; a limb or aspect of something as a characteristic sign, an attribute, a quality; as a determining characteristic or factor, a cause; with that characteristic; in that way; for that reason. Combined pubba - Añga: able to go before; having the ability to come before; go before; precede; condition to lead to; leads to by preceding. “Mano pubbangama dhamma, mano setta manomaya...Buddha” e.g. “Mind precedes all dhamma, all dhamma are mind made... [Dhammapada verses 1 and 2].” Conceptual: Mind precedes everything; is at the forefront. All existence is a product of the mind; the mind is the basis for everything.*

**Puñña:** merit; meritorious action; virtue. *Always* represented as foundation and condition of pleasant rebirth & future happy state, the enjoyment (& duration) of which depends on the amount of merit accumulated in a former existence.

**Puñña Bhava:** (*phrase*) *Puñña + bhava; Punna* (*see above*); *bhava*-existence; happy existence.

**Puñña Kamma:** (*phrase*); (*see puñña above*) (*see also kusala kamma*); good, meritorious actions of a previous existence (*bhava*). Beneficial kamma. For lay persons the offering food to monks and nuns is a *puñña kamma*.

## S.

**Salāyatana** (*specifically*): The six-sense organ *viz:* eye, ear, nose, tongue, body, and mind, e.g. Sight, sound, smell, taste, touch, and thought.

**Sam̐sāra** (*lit. Sansāra*): *San:* primary meaning is “together;” acquiring; adding to; *sara:* arrow; direction; essence of direction; used in reference to “acquiring or adding to this world; to stay in the rebirth process.

**San:** *common usage prefix, viz sañ+jāti, Sañ+jāyati, etc:* suggests acquiring or adding to something; *in conjunction with* acquiring or adding to the world (e.g. attached to the world), remaining in the rebirth process.

**Sandhi** (*frm: san+dha*) (*see “san” above*) (*fem.*): union; junction; joint; connection; agreement; *dha* (*dhi*): here, in this place; in this world; in this existence; in this teaching; suggest motion; e.g. direction; (*saṃ + dhā + a*) connects; unites; fits.

**Sankhara** (*san+khāra* or *saññā + khāra*) *sañña:* feelings and perception/recognition of sensory input; *see “san” above*): (*Note: “One of the most difficult terms in Pali texts, in which the blending of the subjective-objective view of the world and of happening peculiar to the East, is so complete, that it is almost impossible for Western terminology to get at the root of its meaning in a translation.”* “Physical, verbal, and mental processes,” “bodily process, the speech process, the mental process,” and “physical activity, verbal activity, and mental activity [Ref: <https://puredhamma.net/paticca-samuppada/understanding-the-terms-in-paticca-samuppada/sankhara-many-meanings/sankhara-should-not-be-translated-as-a-single-word/> ].” “sañ” + “khāra” or actions that involve “sañ” (*see above*); three types of sañkhāra: kāya (bodily) sañkhāra, vaci (verbal) sañkhāra, citta (thought/thinking) sañkhāra, all arising in and reacting to mind. Aggregate of the conditions or essential properties for a given process or result, e.g. the sum of the conditions or properties making up or resulting in life or existence; the essentials or “element” of anything. *In ref to* a purposive, aspiring state of mind to induce a specific rebirth.

**Sankhara kaya** (*masc.*) (*see san+khāra above*): sum of specific conditions arising in the mind resulting in a specific process and result of bodily actions; essential condition; a thing conditioned, mental coefficient effecting/causing bodily actions/results/effects.

**Sankhara Khandha** (*see sankhara above, also see khandha above*): *khandha:* aggregate of something; collection of something; *therefore,* aggregate of conditions/properties of a given process/result; *combined* aggregate of conditions/properties causing a result.

**Sankhara mano** (*see sankhara above, also see mano above*): specific mental conditions/results/causes arising in the mind/thoughts (*citta*); *specifically,* mental processes.



**Sankhara vaci:** (see *sankhara* above, also see *vaci* below): specific vocal conditions/results/causes arising in the mind/thoughts (*citta*); specifically, vocal/speech processes.

**Saññā:** (*fem.*): (third khandha) sense; perception; mark; name; recognition; gesture; consciousness, perception; intellect; thought; discernment; recognition; assimilation of sensations; awareness.

**Sanphassa** (see “*san*” above, see also “*phassa*” above): Like/dislike of sense perceptions; adding sense impressions; connecting with; recognizing; differentiation *btwn* sense impressions that are liked or disliked; a condition that arise due to senses liked or disliked; *implies* attachment to.

**Sota:** (*neuter*) the ear; (*masc.*), a stream; torrent; flood; the organ of hearing.

**Sugati:** (*fem.*) a happy state; happiness, bliss; a happy fate; a happy condition; *referring to* a happy rebirth.

## T.

**Tanha:** (*fem.*) (*lit.*) thirst, craving (for food or drink); (a general) craving; strong desire; (*lit.*) drought, thirst; (*fig.*) craving, hunger for, excitement the fever of unsatisfied longing; greedy for; lust, desire, human passion resulting/causing a negative state of mind leading to/continuation of rebirth (*source of sorrow*); element *connected with* Paṭicca Samuppāda.

**Tilakkana** (*phrase*): Three characteristics of the various realms of existence: *Anicca, Dukkha, Anatta*, e.g. three characteristics of nature; related to *Sakkāya Diṭṭhi* [Ref: <https://puredhamma.net/key-dhamma-concepts/anicca-dukkha-anatta-2/sotapanna-stage-and-tilakkhana/sakkaya-ditthi-and-tilakkhana/>].

## U.

**Upādāna** (*neuter*): taking as one’s own, laying hold of, grasping; substratum by means of which an active process is kept alive or going; to fuel; keep going; keep alive; grasping arising from sense desires; drawing-upon; grasping, holding on, grip attachment; *adj.* finding one’s support by or in clinging to, taking up, nourished by.

## V.

**Vēdanā** (*fem.*) pain; sensation; cognizant of feeling/sensation; perception of feeling/pain; aware of a sense input, and experiencing the corresponding good, bad, or neutral kamma vipāka (see *kamma vipāka* above); sensations felt by the physical body.

**Viññāṇa** (*neuter*): animation; consciousness; mental quality as a constituent of individuality, the bearer of (individual) life, life-force (as extending also over rebirths), principle of conscious life, general consciousness (as function of mind and matter), regenerative force animation; Generally, two types *vipāka viññāṇa* and *kamma viññāṇa*; any type of expectation of enjoyment of worldly pleasures. (See Ref: <https://puredhamma.net/living-dhamma/essential-buddhism/vinnana-expectations-consciousness/> ]

**Vipāka** (*masc.*): result; fruition; consequence of one’s actions; fruit, fruition, product; *always* in pregnant meaning of “result, effect, consequence (of one’s action),” either as good & meritorious (*kusala*: bad & detrimental; *akusala*: good & beneficial); see *kamma vipāka* above).

**Vipāka viññāṇa** (*phrase*) (see *vipāka* above): responsible for creating kammic energies that can bring future rebirths. Related to *saṅkhāra paccaṃ viññāṇa* of Paṭicca Samuppāda. Ref Pali: *Viññāṇassa nirodgena, Natthi dukkhassa sambhavo.* “Whatever suffering that arises, all that arises due to “(*kamma*) viññāṇa.” Six types of *viññāṇa* can arise via our six senses: eyes, ears, nose, tongue, body, and the mind, called *cakkhu, sōta, ghāna, jivhā, kāya, and maṇō viññāṇa*. All are *vipāka viññāṇa*; see *vipāka & viññāṇa* above.)

Viparīta sañña (**phrase**) (*adj.*): (see *sanna* above) Viparīta: reversed; changed; wrong; contradistinction; converse; perverse; a distorted or a wrong perception;

**Vithi**: course, process of judgment, sense perception or cognition; the path of perception and thinking (*citta*); process of cognition; the course of one's thoughts. *Lit. the word means road; e.g. "the road taken," the path taken.*

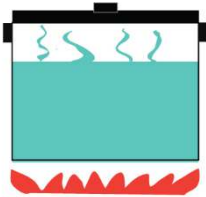
**Votthapana citta** (phrase) (*neuter*) establishing, synthesis, determination, a momentary stage in the unit called perception: "*vottha*" + "*pana*" meaning "deciding on what to do." The contemplation or decision-making process based on specific criteria; *e.g.* If one opens a container of left-over food and sees mold growing, the knowledge that the mold defines the food as bad, based on that assessment, one makes the decision to throw the food away. Therefore, the defining process of the thought.

## APPENDIX

### Anatta:

### Conservation of Energy:

#### SYSTEMS: Closed, Isolated and Open



Regardless of whether we approach the subjects of Physics, the Buddha Dhamma, life, death, consciousness, suffering, rebirth, or cooking soup, humankind cannot escape the fact that everything in existence is defined as one kind of a system or other. Buddha described this is with the Law of Dependent Origination (Paticca Samuppada)<sup>113</sup>.

On our journey to discover the relevance of the Buddha Dhamma in light of current scientific knowledge; the implications of this knowledge, and understanding human existence, an elementary, basic knowledge of systems is fitting<sup>114</sup>.

A bit of knowledge about systems will help to visualize and understand the physical human being, but also the non-physical aspect of the human experience, such as the mental body, the brain, the mind, and consciousness. It will also help with understanding kamma and rebirth.

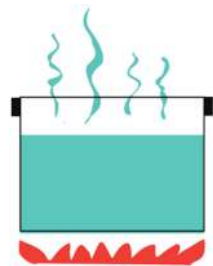
In thermodynamics, the universe can be broadly divided into two parts, namely, the system and the surrounding in which a system is located. The part of the universe that is kept under observation or is being analyzed at a particular moment of time is called the system, while all the objects present in the universe, excluding the system, are known as surroundings. In physical science, particularly thermodynamics, there are three forms of systems that exist in the Universe.

Next, we are going to examine the nature of various systems. First, we take a look at physical systems in order to acquaint ourselves with the order of a system. Philosophically, all religions are basically open systems, whereas the Buddha Dhamma is a closed system.

One system, known as the “**Closed System**,” states that *energy in the form of heat* can be exchanged to its surrounding. A closed system is defined as that in which the mass is fixed, meaning that *no mass can cross the boundary of the system and heat energy can be transferred to its surrounding*. An example of a closed system is when you place a lid onto a saucepan. Doing so creates a closed system. By putting a lid on the saucepan, the matter (contents of the saucepan) can no longer transfer outside of its boundary (the saucepan) because the lid prevents the matter from either entering or leaving the saucepan. However, the heat source can be transferred to the contents (mass) of the saucepan.

Next is the “**Open System**,” which states that mass is not fixed. *Mass can cross the boundary of the system, and heat energy can also be exchanged to its surrounding*. When you boil soup in an open saucepan on top of a stove, energy and matter are being transferred to the surroundings through steam. You can also add things to the boiling soup, therefore the saucepan and the contents are an open system.

Lastly, there are “**Isolated Systems**,” defined as systems that prohibit any exchange of mass and energy between the system and the surroundings. In other words, *no exchange of mass or heat energy can be exchanged*. This means that your soup in the saucepan cannot be affected by the heat from the stove, because the heat cannot be transferred from the pan to the soup.



<sup>113</sup> **Dependent Origination** (Paṭicca Samuppāda): <https://drarisworld.wordpress.com/2017/04/26/dependent-origination-in-theravada-buddhism/>

<sup>114</sup> Physics-Systems: <https://surfguppy.com/thermodynamics/thermodynamic-system-open-closed-isolated-systems/> | <https://differentexamples.com/open-system-closed-system-and-isolated-system/>



To explain this more simply, the mass of matter (the soup) *in* an isolated system (the saucepan) remains fixed and cannot cross the boundaries of the system (the soup cannot permeate and leak through the saucepan). Also, an isolated system does not allow any transformation and conversion of energy from one form to the other.

This means that the heat cannot be transferred from the saucepan to the soup, which would cause the soup to boil and release steam into the surrounding area. The walls or boundaries of an isolated system (the saucepan) are rigid and immovable, and there exists no interaction between the system and the surroundings (the air around the saucepan or the heat source under the saucepan). However, the matter particles contained within the system (the soup in the saucepan) are free to interact with each other.

Some very simple examples of Isolated Systems are terrariums, inflated balloons, an inflated tire tube, a thermos filled with liquid, an airtight container like Tupperware or an airtight coffee carafe, a propane tank, vacuum sealed food bags or sealed cans of food. All are “Isolated Systems” *until* the system is destroyed. Opening a vacuum sealed bag of coffee destroys the system.

Which system or systems does the human body comply with? The human body is an open system, because humans exchange oxygen and carbon dioxide with the surroundings. Food, and water are input, whereas waste and carbon dioxide are outputs. It could be argued that certain aspects of the human body are closed systems, such as the circulatory system.

The human brain is an organ that exchanges oxygen and carbon dioxide with its surrounding, therefore an argument that the brain is an isolated or closed system cannot stand. Here exists a demarcation; a dividing line between the physical and non-physical. Up until now, the discussion has been about the physical world; the physical and phenomenal non-physical aspects of nature. No other system represents as complex a problem as solving the non-physical properties that exist between the human brain, and consciousness, which is responsible for mind.

We can compare the Buddha Dhamma to a Closed System. In order to understand why this analogy works, one needs to understand several core teachings of the Buddha, such as anicca, kamma, gandhabba, viññāṇa, and several more. However, in brief, each living being represents the Buddha Dhamma, which operates in a kind of closed system with each living being. The laws governing Buddha Dhamma never change.

While change is inevitable, and nothing is permanent, on some level human beings have discovered certain things about our Universe that are or at least appear (for this present Age) to be permanent. This permanence is reflected in certain immutable laws that govern human existence and the fundamental elements of our Universe.

As mentioned earlier, a couple of these are the Law of the Conservation of Energy, the Laws of Gravity, the Speed of Light, and the Laws of Relativity. All of this scientific knowledge indicates that we are far more capable than we have been taught to believe or allowed to know. Buddha focused on this, stating that it was very rare to attain a human life. In essence, what the Buddha taught was a way that we could release ourselves from the mundane ignorance that dominates human life and release our capacity to discern the truth about the nature of reality.

### Conservation of Energy (*First Law of Thermodynamics*)

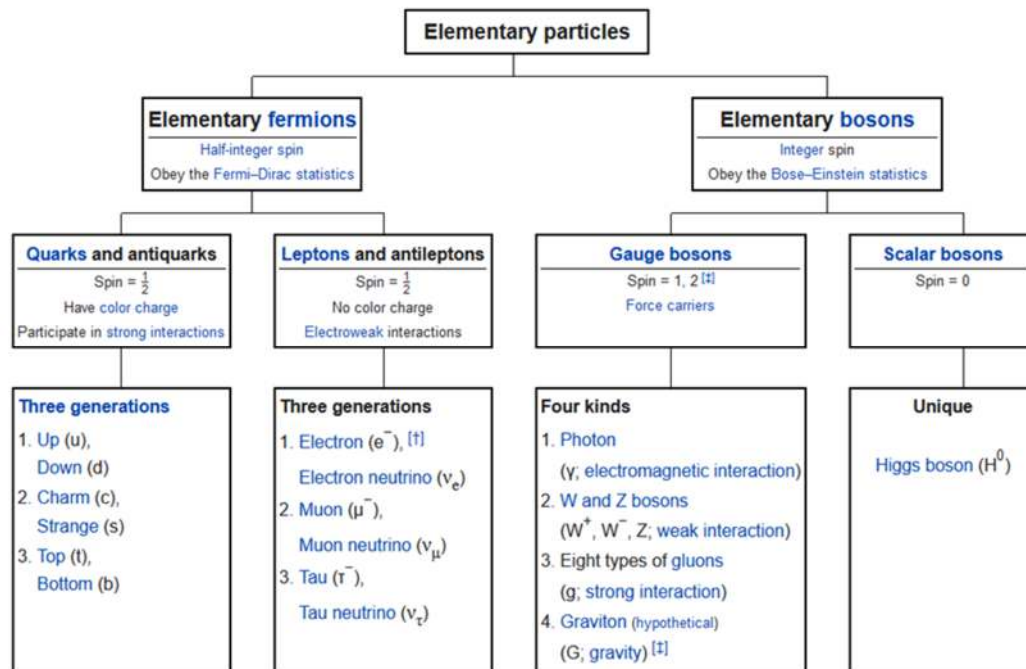
**Basic Explanation:** The law of the Conservation of Energy is a part of the First Law of Thermodynamics. In essence, this law was determined to be a fundamental condition of all existence in the Universe. This law defines this condition with regard to all energy in that energy can be transformed from one form to another, but energy cannot be created nor destroyed it can only be transformed or transferred from one form to another. The total energy of a system remains constant, even if it is converted from one form to another.

**Why this is included with this paper.** The world, the Universe, and all matter in it, including human beings, are an aggregate of atoms, electrons, protons, and so on, which are tiny units of energy. When a tree falls in a forest and dies, it decays and becomes a part of the soil. Although the molecular structure of the tree breaks down, the energy contained in the atoms of the tree do not simply disappear. The molecular matter of the tree is transformed, but the energy remains constant. This is true also for the biological structure of the human being. However, the subtle atomic properties of the electrical energy that a human utilizes to think, make decisions, create memories, and so on, also conform to the Conservation of Energy. It is within this subtle energy that the human being exists. Proven beyond question, energy can not be destroyed.



The subtle energies of human consciousness remain in tact after the death and decay of the biological body. Additionally, the subtle energies that operate and define human thought, memory, intention, and actions, also are governed by this Law. This Law fundamentally explains the causal characteristics and foundation for the Law of Kamma, the gandhabba, and rebirth.

## Elementary Particles



## Kusala and Akusala: Core Concept

Kusala refers to that which is 'kammically wholesome' or 'profitable', 'salutary', 'morally good', 'skillful' and 'blamelessness'. 'Akusala' refers to the opposite; 'unwholesome', 'unskillful', 'non-beneficial.' Both are the consequences of actions.

### Six Roots of Kusala and Akusala Actions

Buddha traced all moral good and moral evil to six roots. All moral evil spring from the three roots of lobha (greed, covetousness), dosa (hatred, aversion) and moha (ignorance, delusion, mental confusion). All immoral corrupt abuses and all unwholesome mental dispositions, whether manifested mentally, vocally or physically come into being via these roots. Conversely, all moral good is the result of three roots of alobha (non-greed, non-covetousness), adosa (non-hatred, non-aversion) and amoha (non-delusion, absence of ignorance). Mental bondage is the result of a mind that is obsessed with greed, malice, hatred, aversion, ignorance, and mental confusion. Akusala actions causes one to fail to see things in their proper perspective, and prevents one from acting properly.

When kusala qualities are dominant, we experience mental health (arogya), mental purity (anavajjata), dexterity (cheka), mental contentment (sukha-vipaka). Such a mind is healthy and skillful. It is said that kusala leads to Nibbana, the ultimate goal in Buddhism for nibbana means the complete elimination of all traces of self-

eccentricity and ego-centric impulses or a complete cooling of the mental hindrances of the mind that cause suffering and continues the cycle of death and rebirth. The more selfless acts (kusala) are done, the more selfless we become, and the closer we come to the realization of nibbana.

#### Self and others

If the act of selflessness is the goal, then what is the relative position of one's own good and the good of others? In the early Pali discourses, individuals are classified into four groups, in the following manner:

1. The individual who pursues neither his own (moral) well-being nor others' (moral) well-being
2. The individual who pursues others' (moral) well-being but not his own (moral) well-being
3. The individual who pursues his own (moral) well-being but not others' (moral) well-being
4. The individual who pursues his own (moral) well-being as well as others' (moral) well-being

The four individuals are mentioned here according to an ascending order of excellence, with the first individual being the most inferior and the fourth, naturally, as the most superior. One may wonder why the third individual is considered a better person than the second – with one pursuing one's own well-being before that of others. The answer to this can be found in the Buddha's reply to Cunda, *"It is not possible for one who is stuck in mud to pull out who is (also) stuck in the mud."* One who is stuck in the mud of moral depravity is not in a position to save another in the same predicament. As exemplified in the life of the Buddha himself, it is after realizing his own moral perfection that the Buddha began his mission for the moral uplift of others. In deeming the fourth person the most superior, the Buddha is affirming that equal priority should be given to both. In short, whatever that is kusala is beneficial to oneself and others – in thoughts as in deeds.

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